Using business rates data in a GIS to examine retail change in Swansea.

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USING BUSINESS RATES DATA IN A GIS TO EXAMINE RETAIL CHANGE IN SWANSEA

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Submitted to the University of Wales in fulfilment of the requirements for the degree of Master of Philosophy (Geography)

University of Wales, Swansea

2006

This work has not previously been accepted in substance for any degree and is not being concurrently submitted for any other degree.

Signed: ..... *(candidate)*

Date: 2nd Nov. 2006

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Abstract

This thesis straddles the fields of retail geography and Geographical Information Systems (GIS). Retailing has undergone an intense intra-urban spatial transformation during the last few decades. The majority of the previous research monitoring this transformation uses qualitative methods, and there is consequently little quantitative research examining the spatial shifts of retail activity using a GIS. To compensate for this lack of quantitative analysis, this research focuses on the methodology of developing a means of monitoring retail change through existing datasets. Through the combined use of business rates data and Ordnance Survey postcode data, changes in the spatial location of retail outlets between the years 1990 and 2000 are recorded, monitored and presented visually through a range of thematic maps. This allows the examination of spatial retail activity at the intra-urban scale as well as an assessment of the extent to which patterns of decentralisation, agglomeration and dispersal are occurring within the study area. To assess both the usefulness and effectiveness of this methodology as an alternative means to monitoring retail change, the study then examines the research findings against recognized patterns of change highlighted in the existing literature and through evidence provided by key informants in various associated fields. It is concluded that GIS is an efficient tool for monitoring and exploring changes in commercial spatial activity, and Business Rates data may be used as an effective tool for monitoring changes in retail location.

Acknowledgements

There are many people I would like to thank for a variety of reasons. Firstly, I would like to acknowledge the continuous help of my first supervisor, Dr Rosemary Bromley who suggested themes and focus, offered direction and provided the much needed knowledge, as well as the comments and feedback from day one. My second supervisor, Dr Adrian Luckman provided valuable feedback on the GIS aspects of the thesis, offering advice and assistance throughout the course of my research. I would also like to thank Dr Jamie Smith at the City and County of Swansea for not only providing the majority of the data required for the study, but for his advice on how best to use it, as well as for coping with my pestering demands despite the limited time he had available.

For giving me their time for interviews, I would like to thank Dr Colin Thomas, David Williams, Nick Mills and Dr Jamie Smith. Thanks also go to the many members of the Geography department who all helped me along the way; too many names to list here!

I'd also like to thank my parents, both for their financial support and for their putting up with me whilst working at home for so long. Thanks to Sarah for the advice, support and for putting up with me in general!

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1 | Introduction

1.1 | Introduction

This research straddles the fields of retail geography and geographical information systems. Its focus is concerned primarily with methodology rather than the findings of retail change *per se.* This introductory chapter will therefore introduce the topic of retail change, the research aims and hypotheses and the study area before considering GIS methodology. The chapter ends with an outline of the thesis structure.

Since the beginning of the twentieth century, numerous attempts to account for retailers' micro-spatial movements have been undertaken (Brown, 1987). Although change has been a perpetual feature of retailing since this period, the most dramatic change in the retail environment has occurred in Western economies since the early 1970s affecting both the business organisation of retailing and its spatial expression at scales ranging from the international, to the local (Bromley and Thomas, 1993).

Such dramatic changes have brought important changes to shopping provision in the United Kingdom (Guy, 1998b). Large new purpose-built stores have emerged, many of them outside established shopping centres. These 'out-of-town' retail parks and regional shopping centres have provided heightened competition for the traditional hierarchical structure of retailing in British city and suburban centres. This constitutes a major paradox in British retailing. The early divergences from the hierarchical tend to reflect circumvention of local planning regulations in a variety of ways by retailers (Bromley and Thomas, 1993). Subsequently, throughout the 1970s, the intermittent relaxation of planning controls by central government, followed by an increasingly free market orientation throughout the 1980s and early 1990s explains this paradox. Together, the resulting changes in the retail geography of British cities have been considered to constitute a retail revolution, which form the underlying

principles of this research. Growing concern over the impacts of such developments is becoming increasingly evident in both academic and government publications.

This retail revolution has taken place within the context of the principles surrounding the 'free-market' ideology (Bromley and Thomas, 1993). Since 1979, the Conservative government aimed to relax the constraints imposed by the planning system in a way that inevitably reduced its legislative pressures. The recession of the late 1970s and early 1980s, and its accompanying recovery, combined with the loosening of planning constraints, contributed to the dramatic restructuring of urban geographical space. Retailing played a key part in this change. The 1980s was a 'golden age' for the retailer, when spatial changes occurring strengthened trends dating back to the 1960s (Bromley and Thomas, 1993). Perhaps more than any other aspect of retail change, the spatial transformation reflects the complex array of contemporary social, economic, technological and policy trends. For these reasons it merits special academic attention.

This research, therefore, is concerned with analysing and monitoring the recent changes in spatial retail activity within the Swansea urban district, with a focus on methodology. It draws on both qualitative and quantitative research methods to present a picture or overview of the spatial shifts in retail activity between the years 1990 and 2000. Using business rates data accompanied by a variety of existing GIS data, the changing locations of retail activity can be mapped and visually represented. The findings from this preliminary investigation will be assessed and examined using qualitative research methods, incorporating the links between these findings and academic and government publications, as well as the expert assessments of key informants in the fields of retail change, research and academia. Conclusions will be drawn from this qualitative evidence regarding the usefulness of the research techniques formed within this study to the local authority and to academic research.

1.2 | **Aims and Hypotheses:**

The research is based upon three key aims. Firstly, the research aims to identify any spatial land use shifts of retail activity within the Swansea urban region using business rates data input into a GIS. Extending from the first aim, the research then aims to explore the effectiveness of this method through cross-examining the findings against the patterns of change highlighted in existing academic literature and through the legislative powers of government policy. Finally, the research aims to assess the usefulness of rates data within Geographical Information Systems (GIS) in exploring retail land use changes through the evaluations of key informants.

Following these aims, four background hypotheses can be introduced in order to elaborate on the aims of the research. The first two are interlinked and focus on retail patterns. The third and fourth are based on the effectiveness of both GIS and business rates data in exploring spatial changes in commercial activity.

1) Retail activity in Swansea is decentralising towards out-of-town centres;
2) Retail activity is becoming concentrated in retail parks on the edge of the city;
3) GIS is an efficient tool to monitor and explore spatial changes in commercial activity
4) Business rates are an effective tool for monitoring changes in retail location

1.3 | **Study Area:**

Swansea is a British regional city situated on the south-west margin of formerly industrial South Wales (Tallon *et al.*, 2005). It is Wales' second largest city, with a 2001 population of 223,293, situated within a wider urban area of around 500,000 people within a thirty minute drive time of the city centre (Swansea City Centre Partnership, 2002).

Although not being entirely urban, the study region was chosen by those postcode districts which exhibit a high commercial presence. The postcode sectors chosen in the study were SA1, SA2, SA4, SA5, SA6 and SA7 (figure1.2), covering a total of roughly one hundred square miles (figure 1.1). The region stretches from Swansea bay in the south, to Gowerton in the east, St Thomas in the west and Pontarddulais in the north. Incorporating the city centre, a number of smaller district centres and various retail and commercial parks, namely Fforestfach, the Swansea Enterprise Park, and the Parc Tawe Retail Park sites, the region boasts an abundance of commercial shopping centres (figure 1.3).

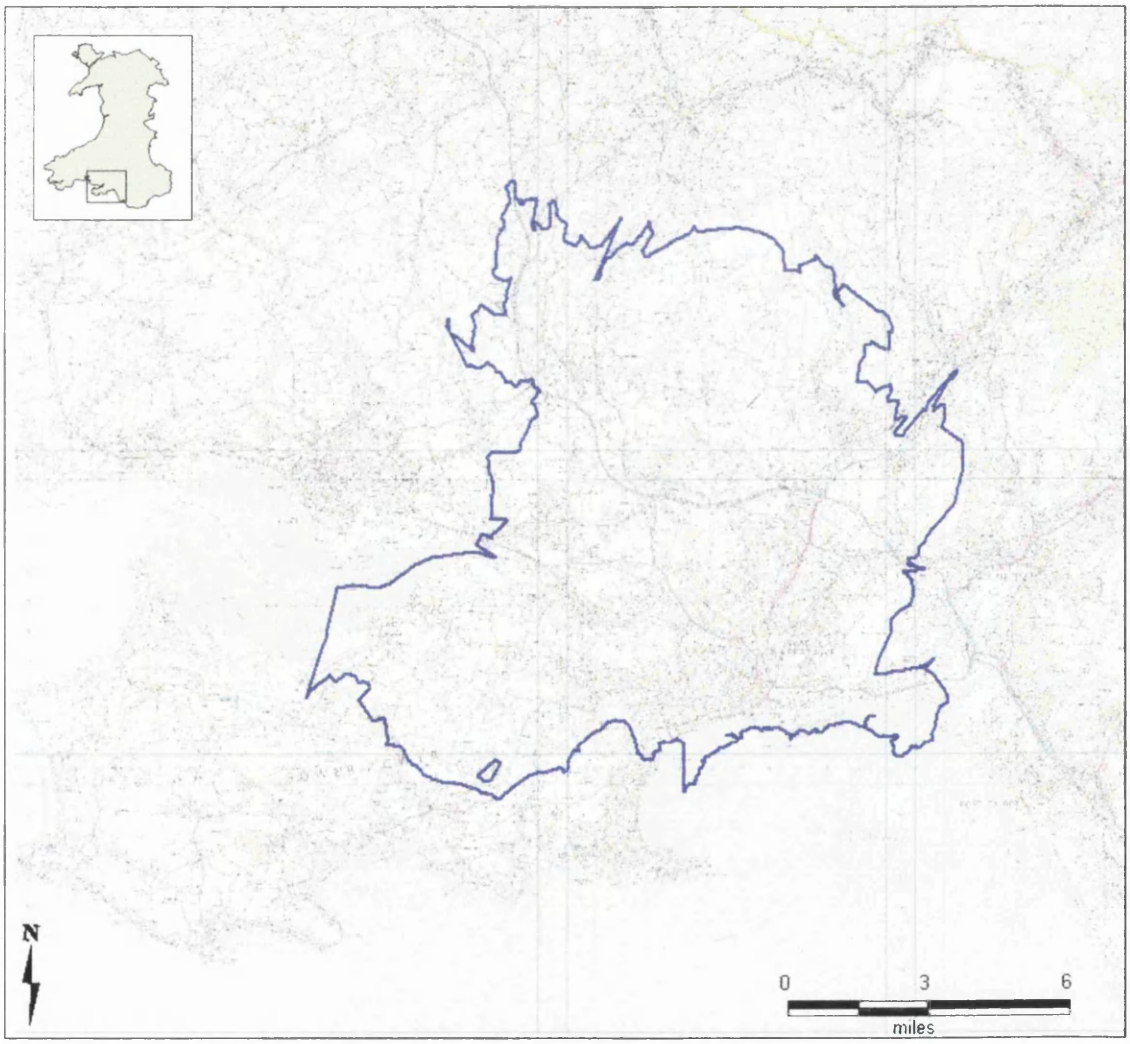


Figure 1.1: **The Swansea study area**

The Swansea area has experienced a development process based around its industrial heritage. During the eighteenth and nineteenth centuries, Swansea was at the forefront of the industrial revolution, emerging as one of the earliest industrial centres in Britain and as a major actor on the world industrial stage (Tallon *et al.*, 2005). The heart of this economic activity and growth in Swansea was focused on the lower Swansea valley, with similar processes of development occurring throughout the wider city, encompassing the smaller satellite settlements of Llanelli, Neath, Port Talbot and their neighbouring valleys (Humphrys, 1997; Tallon *et al.*, 2005).

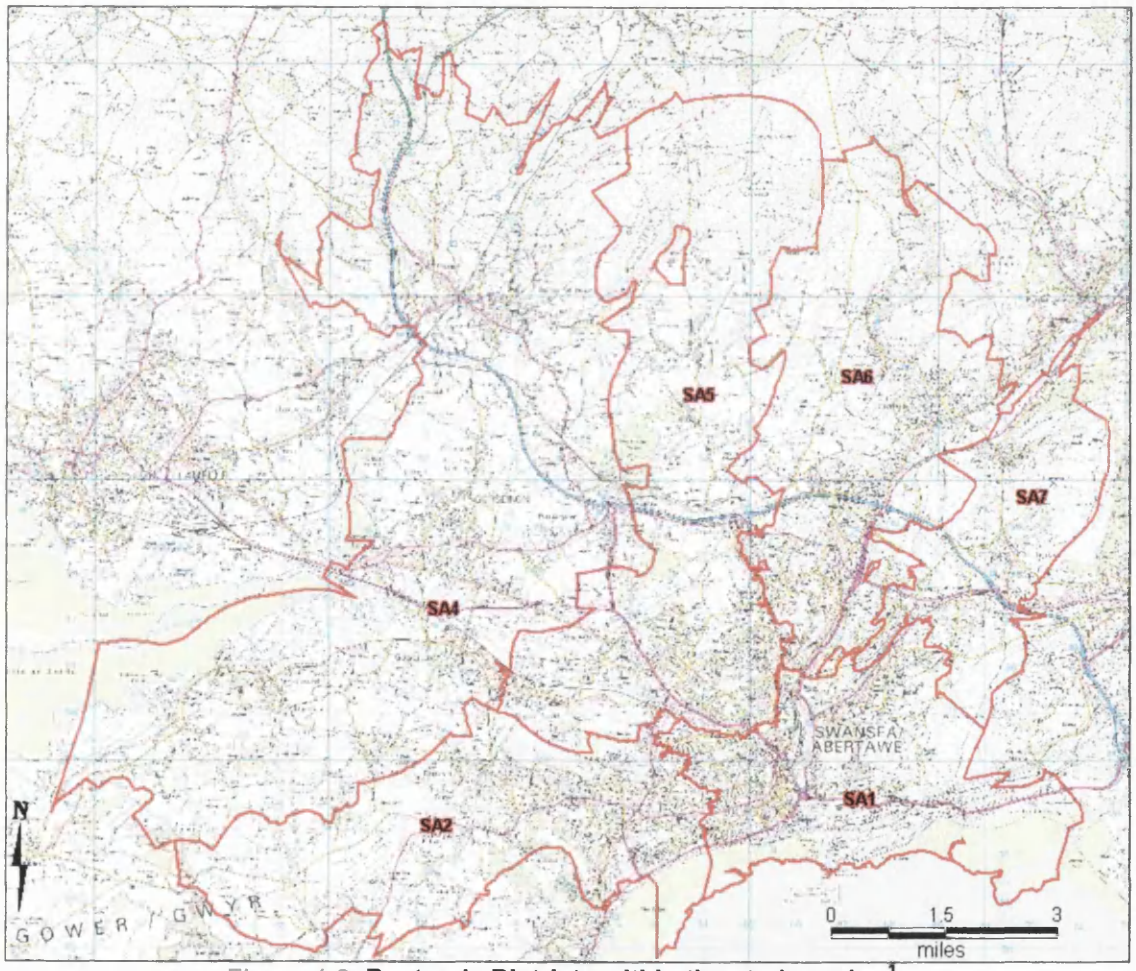


Figure 1.2: **Postcode Districts within the study region**[1]

[1] It should be noted that postcode boundaries situated on coastlines extend to the mean high tide level. This is apparent in SA1 and SA4, and in the south-east of SA2.

Physical constraints have forced development, lines of communication, and settlements to follow linear patterns along river courses and valleys. By the early twentieth century, the city had developed into a region stretching from Llanelli in the west to Port Talbot in the east (Tallon *et al.*, 2005), with an urban landscape reflecting its industrial heritage, termed Greater Swansea (Davies, 1972) or more recently, Swansea Bay City (Humphrys, 1997).

In the early to mid-twentieth century, significant changes in the pattern of urban development and a socio-economic transformation began to appear. Such changes were strongly linked with the intensifying forces of deindustrialisation associated with foreign competition (Humphrys, 1997; Tallon *et al.*, 2005). By the 1960s, the area was economically, socially and environmentally problematic (Bromley, 1997). Adding to the difficulties surrounding the collapse of the local economy and its resulting job losses, various industrial processes had caused severe pollution and the lower Swansea Valley became one of the most contiguous areas of industrial dereliction in Britain (Bromley, 1997; Tallon *et al.*, 2005).

Swansea's urban redevelopment process was set in motion after bombing in the mid-twentieth century. A major focus of this redevelopment was on shopping provision in the urban district. Increased mobility for shopping and leisure purposes made possible by road improvements and increased private car ownership gradually made Swansea more important as a shopping destination during the 1960s and 70s. By this time however, edge-of-town supermarkets and shopping areas with large car parks added a new feature to the geography of shopping in the Swansea urban district (Humphrys, 1997). During the late 1970s, a major concentration of superstores began to be built on the in the lower Swansea valley, north of the town centre, easily accessible by major transport routes. This area expanded dramatically when the area was made part of the Swansea Enterprise Zone in 1981. The combination of relaxed planning controls

and a ten year period free of local taxes meant the Enterprise zone became a prime location for commercial activity.

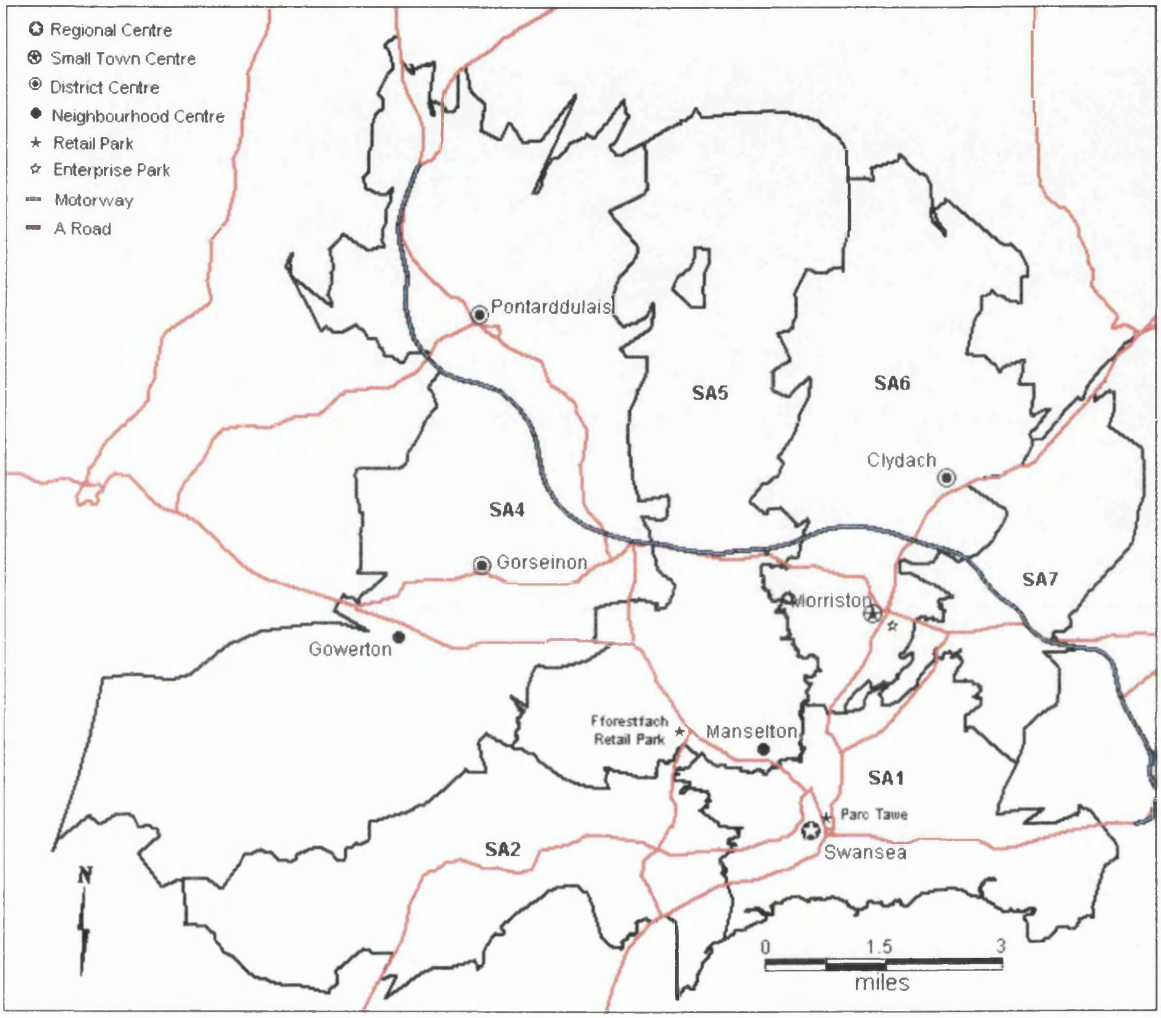


Figure 1.3: **Major shopping facilities in the Swansea study area**

Until 1978, the system of shopping centres in Greater Swansea conformed to the conventional hierarchical pattern replicated in most British cities (Thomas, 1989; Thomas and Bromley, 1986). A number of smaller town centres complemented Swansea's regional centre, each less than a fifth of Swansea's size (figure 1.3). Below this hierarchical level were 'a number of much smaller town centres, generally consisting of either suburban nodes or former village centres which had grown into larger shopping centres following residential

expansion' (Thomas and Bromley, 1986; 288). These processes evolved in parallel to the urban growth process, and until the late 1970s, were not subject to major planning policy pressures.

The West Glamorgan Structure Plan of 1977 was drafted primarily to channel commercial pressures for new retail development to improve the retail status and the environmental quality of existing centres (Thomas, 1989; Thomas and Bromley, 1986). Pressures for decentralised superstore developments were also directed towards the maintenance of the existing system. For example, Tesco were encouraged to develop major units of superstore size with adjacent car parking facilities in the town centres of neighbouring Neath and Aberafan (Thomas, 1989), despite a strong preference for peripheral superstore developments (Thomas and Bromley, 1986). The conservative nature of these strategies was typical of many British cities during this time, and represents an evolutionary accommodation of the forces of change rather than the initiation of a revolution in spatial restructuring (Dawson, 1980; Guy; 1980; Thomas; 1989).

1.4 | Introduction to maps and GIS

GIS is a relatively new technology and is becoming one of the most important approaches to global problem solving (Bernhardsen, 1999). As demand for data on topography, natural resources, and demographics accelerated rapidly in the late twentieth century, GIS technologies developed to represent a billion dollar worldwide industry, growing at roughly 25% per year and serving between 50,000 and 100,000 users (Bernhardsen, 1999). The continually decreasing costs of hardware and the availability of off-the-shelf software has increased the wealth and potential for digital cartographic analysis. As a result of these developments, GIS is becoming increasingly found in business, commercial, governmental and scientific uses.

Cartographic knowledge is used in GIS to create visual representations of reality. GIS offers the possibility of integration of geospatial datasets from different kinds of sources, such as surveys, statistical databases and existing two-dimensional maps. The extensive functionality of GIS allows users to manipulate these data or to set up geospatial analysis operations in conjunction with application based models, which allow the visualisation of the data at any time during the process of data analysis.

1.4.1 | **Defining Geographical Information Systems:**

Many definitions of GIS exist, none of them entirely satisfactory, and many suggest more than just a technology (Longley *et al.*, 2001). Certain definitions however, are particularly helpful. Put simply, Longley *et al.* (2001; 10) state, a 'GIS is a computerised tool for solving geographic problems'. However, Burrough and McDonnell (1998; 11) define the tool-base definition of a GIS as 'a powerful set of tools for collecting, storing, retrieving, transforming and displaying spatial data from the real world for a particular set of purposes'. Incorporating these two notions therefore, a GIS is a computer-based tool for mapping and analyzing geographic phenomenon that exist, and events that occur, on Earth.

GIS technology integrates common database operations such as query and statistical analysis with the unique visualization and geographic analysis benefits offered by maps. These abilities distinguish GIS from other information systems and make it valuable to a wide range of public and private enterprises for explaining trends, predicting outcomes, and planning strategies.

1.4.2 | **The development of GIS:**

Geographical information systems were originally developed as an extension of the use and analysis of the traditional paper map. The most basic form of digital cartographical information represents similar types of data that are displayed on paper maps. Digital maps use the same measurement frameworks, and

frequently also use the same representation methods as used on paper maps (Demers, 2000).

The roots of geographical information systems can be traced back to the 1960's (Burrough and McDonnell, 1998). It was not until the early 1980's, however, that the price of computing hardware had fallen to a level to sustain a significant software industry and the cost-effective application of GIS (Longley *et al.*, 2001). The increased rate of change within modern societies created a need for faster and more efficient data collection which, in turn, led to the development of new collaboration techniques. The increasing demands of modern society for data collection, analysis and presentation of rapidly updated spatial information have spurred on the development of GIS, a process which has involved many interrelated disciplines (Parent and Church, 1987).

Although Longley *et al.* (2001) see GIS as more than just a technology, it is fundamentally based on developments within cartography, computer graphics, computer aided design (CAD), photogrammetry, geodesy, remote sensing and other related fields. As a result of these developments, GIS has been adopted by a number of disciplines with an interest in the analysis of space, for example in the fields of cadastral analysis, environmental protection, documentation demographic data and many aspects of urban planning. GIS is also becoming increasingly popular in business and commercial uses for the analysis of markets and their accompanying economic trends. The application of GIS technologies to various operations within local authorities is highly documented (Harris, 1989). The increasing capabilities and efficiency of various GIS systems have allowed local authorities to build and develop bespoke datasets digitised against a digital map backdrop. A survey carried out by the GIS panel of the Royal Town Planning Institute found that over two thirds of authorities in Britain had operational GIS or automated mapping systems, and found evidence of acceleration in the increase in take up of such systems (Higgs and Martin, 1997).

1.4.3 | **Components of a GIS:**

A GIS is made up of six main components. The first of these is hardware or the devices which the user interacts directly with. Computers, digital storage space and data gathering systems such as satellites and global positioning systems (GPS) are all major components used to support GIS activities.

Secondly, new software tools are making GIS both more capable and more accessible (Burrough and McDonnell, 1998). Software can range from an off-the-shelf package to a highly developed industrial strength programme which is designed to serve an enterprise of networked computers (Longley *et al.*, 2001).

Following this, the third component of a GIS is the database, which consists of a digital representation of selected aspects of the Earth's surface, built to serve a specific problem solving or scientific purpose.

Fourthly, the effective use of a GIS relies predominantly on its design and methods. Continuously advancing technologies have provided an increasing number of tools to manage and analyze information. Access to appropriate techniques is only one facet of an effective methodology.

The use of GIS is limited only by the capability of its users (Burrough and McDonnell, 1998). Although conventional GIS required a very specialized skill set, specialized geographic knowledge and spatial thinking remain essential to addressing geographic problems. The GIS practitioner must not only be a technology expert, but must apply their expertise appropriately in new and increasingly effective ways in a technologically changing world.

Finally, the effective output and visualisation of data is essential to successful application of GIS. Without a functional synthesis and meaningful output, no trends, patterns or benefits will be realized from the results. From statistical reports and traditional maps to interactive digital maps, GIS can aid visualization of complex ideas and even simulation of real-world issues.

1.4.4 | Data Modelling:

The real world may be described in terms of models that delineate the concepts and procedures needed to translate real world observations into data that are meaningful to GIS (Bernhardsen, 1999). Data modelling, therefore, is the process of interpreting reality by using real world models, and a data model is a set of constructs for describing and representing selected aspects of the real

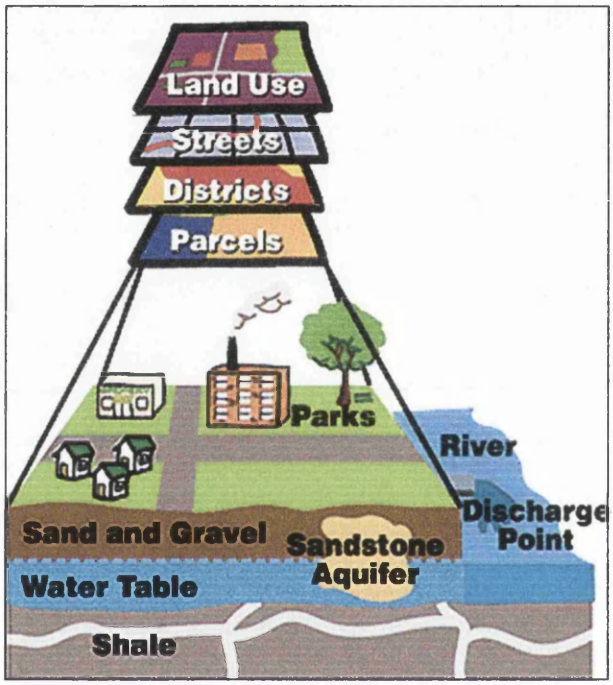


Figure 1.4: **The layer approach used in GIS**[2]

world in a computer (Longley *et al.*, 2001). A GIS stores and uses real-world data as a collection of thematic layers which can be linked by geographical coordinates (figure 1.4). The thematic layer approach allows users to organize geographical complexities into a simple representational model to help facilitate the understanding of comparable relationships. Due to the infinite complexity of geographical reality and the finite power of the computer, complicated decisions must be made on what and how to model using a GIS. Noting this, there is no single GIS data model which is best for every conceivable circumstance.

[2] Source: http://www.innovativegis.com/basis/primer/concepts.html

Fields and discrete objects define two conceptual views of phenomena, but they do not solve the problem of digital representation. A field view still potentially contains an infinite amount of information if it defines the value of the variable at every point, since there are an infinite number of points in any defined geographical area (Bernhardsen, 1999). Thus, fields and objects in this case are seen as conceptualisations or ways in which geographical phenomena are perceived (Longley *et al.*, 2001; 72). Such information is characterised and recorded within a GIS in either a vector or raster format.

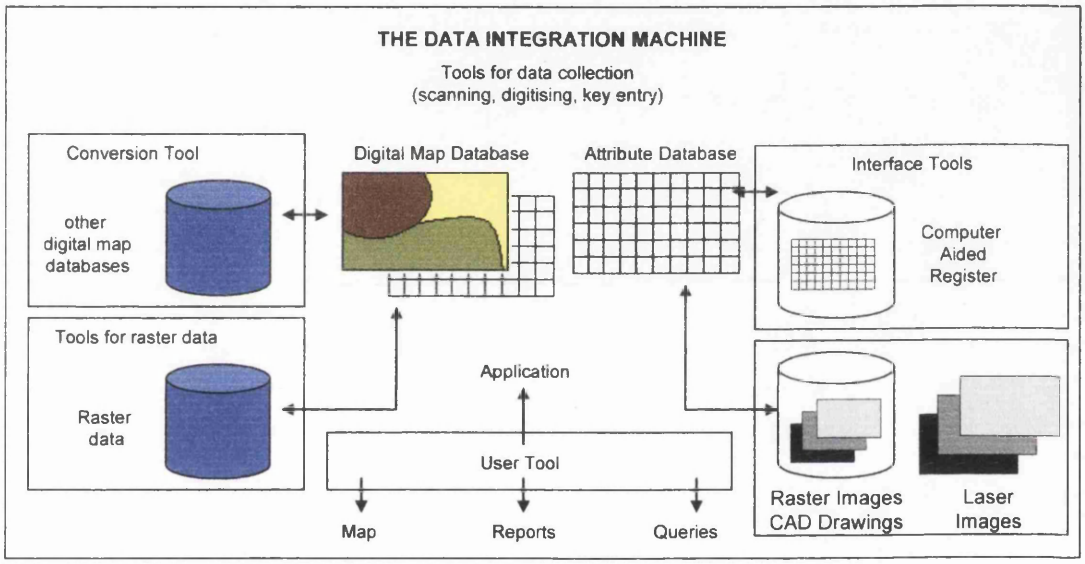


Figure 1.5: **The data integration process**

Within a vector based GIS, all data is stored as points, lines and polygons. The main aim of a polygon is to define an area by enclosing it with a continuous line. Point data is defined as a co-ordinate pair and the line and polygon as a line defined by a string of co-ordinate pairs (Burrough and McDonnell, 1998) (Figure 1.6). Noting this, vector systems allow very accurate documentation of spatial data. This information is stored accurately and economically with respect to memory needs. These characteristics have resulted in vector systems often being used as the basis of network and land information systems and within high quality cartographic projects.

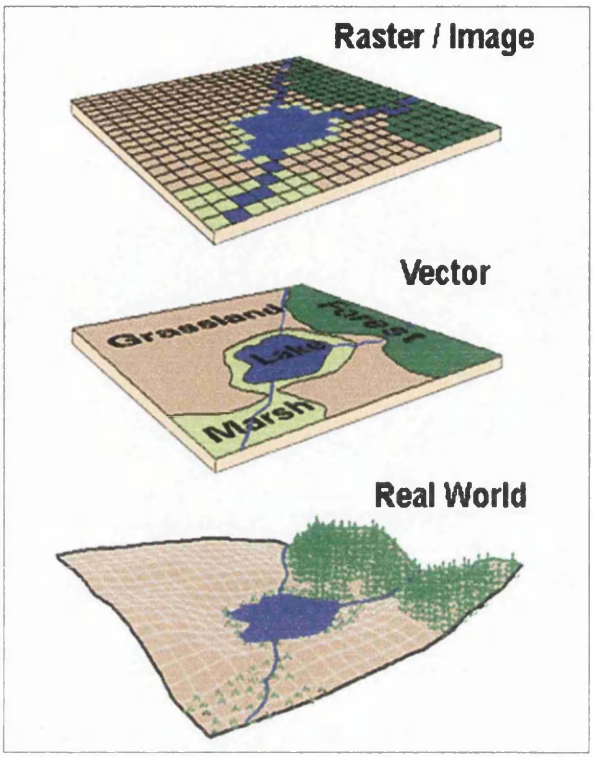


Figure 1.6: **Raster and Vector representations of real-world entities**[3]

Raster systems, however, represent the area of interest as a series of cells connected like the squares of a chessboard. Each cell is identified through its position within the rows and columns of the grid. The point in such a system is therefore represented by a single cell, the line as a string of connecting cells and an area as a group of adjoining cells. Raster based GIS are most suited for data groups whose edges are difficult to define or have been smoothed in some way. They are particularly suitable for the analysis of continuous surfaces such as environmental data or land uses.

1.4.5 | **Thematic Mapping:**

A thematic map is a type of visual display which uses a variety of graphics to display information about the map's underlying data regarding a particular theme. In essence, thematic maps display the spatial distribution of a variety of qualitative and quantitative information. Qualitative maps depict the

[3] Source http://www.innovativegis.com/basis/primer/concepts.html

geographical distribution of nominal data, which is classified without hierarchy. Quantitative maps are more complex, and incorporate the location of ordinal, interval and ratio data (Longley *et al.*, 2001). Ordinal data in this sense provide the user or reader with information about rank or hierarchy, such as populated places being classified as either a city, a town, or a village.

1.4.6 | **Data Storage and Editing:**

The manner in which digital map data are stored in a record is determined by a format specifying how data are arranged in their respective fields (Bernhardsen, 1999). Data storage concerns the way in which data about the location, linkages, and attributes of geographical elements are both structured and organised with respect to the way in which they are handled within the computer and how they are perceived by the users of the system.

It is generally accepted (Bernhardsen, 1999; Burrough and McDonnell, 1998; Longley *et al.*, 2001) that the essential features of any data storage system are that they should allow data to be accessed and cross-referenced easily. The information content of the data is designated not in the actual data format, but in a format ancillary to it, in a heading for example (Bernhardsen, 1999). For ease of analysis and to enhance cross referencing capabilities, typical heading specifications may include thematic code, easting, northing, or figure titles. Furthermore, cartographic data is stored in a standardised format, implemented through common reference systems and uniform formats (Bernhardsen, 1999).

The data storage and retrieval systems incorporated into many GIS software organizes the data, spatial and attribute, in a form which permits it to be quickly retrieved by the user for analysis, and permits rapid and accurate updates to be made to the database. This component usually involves use of a database management system (DBMS) for maintaining attribute data. Spatial data is usually encoded and maintained in a proprietary file format.

1.5 | **Thesis structure:**

There are six chapters within this thesis. The first chapter, of which this is the final section, is an introduction aimed at clarifying and justifying the content of the study. It provides a general introduction to retail activity research and highlights some key contemporary issues surrounding its themes. The study area is introduced, with a brief history and description of the commercial trends within the region.

Chapter two provides the theoretical background and places the research within its academic context. The chapter reviews existing literature in an attempt at analyzing and extracting key points from a wide range of academic scripts which encompass the theories and practices of urban retail change. Discussions surrounding the work of Fishman (1987) and Lockwood (2001) on the 'Edge-City' and 'carcentric' concepts, respectively, integrate the work within its wider geographical dimensions. The changing patterns of the geographical locations of retailing are then examined, based principally on Schiller's (1986; 1988) 'waves of retail decentralisation'. Moving on from this, the linkages between retailing and Government policy are discussed, as well as the use of GIS in government planning organisations and in retail location analyses. The literature on urban economic rent theory and location theories is also briefly considered. Finally, research gaps are highlighted, as are potential routes for further study.

Chapter three explains the methodologies used in the research. Due to the lack of set methodological parameters on which to base this research, the chapter explains the research methods in sequential order, beginning with data collection and how such data may be used within a GIS system. Following this, the spatial statistical analysis techniques are outlined and described, with particular emphasis on how such techniques may be performed within a GIS. As the research is based fundamentally on the multi-method approach, the chapter extends to explain the qualitative techniques used for gathering evidence of retail change within the Swansea urban district.

Chapter four examines, illustrates and describes the patterns of retail change using a combination of thematic maps, graphs and annotation. To increase legibility, the section is split into sections which examine the patterns of retail change by commercial category. Beginning with changes in shops and premises, the chapter moves through each of the commercial categories defined for business rates purposes. Having described any changes by commercial category, the chapter then examines the changes in the total number of commercial premises, along with the changes in the total value of business rates by postcode sector.

Following the examination of changing retail facilities in chapter four, chapter five relates these findings to known patterns of change recognized in the existing academic literature. To further reinforce the assessment of the usefulness of such a recent technique, the findings of chapter four are compared with national and local government planning policies and legislations. It is useful to explore whether the patterns of retail change conform to the urban planning policies established by local and national government authorities. Following these preliminary examinations, the chapter incorporates the results drawn from discussions with key informants from various related fields.

In conclusion, chapter six provides a summary of the major findings of the research study. Beginning with a brief introduction, the chapter relates the research findings to the aims and objectives highlighted in this introductory chapter. Problems and limitations are then indicated, as are possible means to alleviate such quandaries in future research. Future study directions are then suggested, highlighting options for the further development of the research at both practical and methodological levels.

2 | Retail change and GIS; a review of the literature

2.1 | Introduction: the importance of retail study

Retail change has occurred within the milieu of wide-ranging socio-economic trends (Bromley and Thomas, 1993). The 'political-economic re-theorisation of retail geography, with its central concerns underlying the transformation of retail capital, a more sophisticated understanding of the shared nature of the relations between space and corporate retail activity' (Lowe and Wrigley, 1996; 29), draws us to the ideas of Blomley (1996; 256) that retail geography is 'potentially one of the most interesting and challenging sub-disciplines' in geographical research.

The continued economic growth of the retail sector has led to a considerable evolution in attention in academic research from a variety of disciplines over the past two decades. The focus on retailing and the processes of retail change has grown considerably in a parallel fashion with the rise of the retail sector. Retail activities constitute a major part of our lives. They form a major component of the structure of cities throughout the western world, and have a major impact on both the economic and social fabric of the city. Regional shopping centres, retail parks and other commercial outlets have become an integral part of the British urban landscape since the early 1980's. 'Retailing [therefore] is not an activity to be determined by some mechanical model or to be reduced to some minimal level and banished to the outskirts of the community' (Jones and Simmons, 1990; 2); instead, the study of retail practice and process has become and remains situated at the forefront of urban geographical research. A good research method, therefore, is an essential part of a retail change methodology.

Guy (1998a) argues that the literature surrounding retailing has predominantly revolved around two key aspects. Firstly, much of the work has focused principally on the grocery sector, particularly on the 'superstore' side of retailing (Guy, 1995; 1996; Hallsworth and McClatchey, 1994; Langston *et al.*, 1997;

Wrigley, 1994; 1996; 1998). Secondly, and with increasing popularity, there has been a tendency to study the relations between retail patterns and public policy or, more precisely, retail decentralization processes (Bromley and Thomas, 1993; Davoudi, 2002; Johnston, 2000; Jones and Simmons, 1990; Mieszkowski, 2004; Peron, 2001). However, Guy's (1998a) specification of the two chief study areas has overlooked a significant element of retail study. Set in motion by William Applebaum (1965, 1966), the awareness that retail site location was a major contributor to the processes of urban growth and change became a major research topic for many writers, and a significant literature dealing with the processes of site assessment and optimal location research has emerged (Arentze *et al.*, 1996; Brown, 1992; Clarke *et al.*, 2003; Simkin, 1990; Smith and Sanchez, 2003).

The orthodox notion that western cities have traditionally been associated with heavy industry has changed dramatically in the last two decades. In their work, 'Technopoles of the World', Castells and Hall (1994; 470) indicate that if '...the coal mine and its neighbouring iron foundry, belching forth black smoke into the sky' was the image of the nineteenth-century industrial economy, there is a corresponding image for our contemporary urban landscape consisting 'of a series of low, discreet buildings, usually displaying a certain air of quiet good taste, and set amidst impeccable landscaping in that standard real-estate cliché, a campus-like atmosphere' (Castells and Hall, 1994; 471). They go on to indicate that 'scenes like these are now legion on the periphery of virtually every dynamic urban area in the world' (Castells and Hall, 1996; 476). This uniform, standardised landscape is typical of the retailing environment on the urban fringe. Increasingly visible are 'warehouse sheds and monolithic complexes' (Johnston, 2000; 14) on the edge of town as seen in many modern retail parks. The inner urban fringe, therefore, is the place where the most significant changes in the landscape have occurred in the last three decades. The landscape of the modern consumption age has now, to a large extent, become concentrated on the urban periphery.

2.1.1 | **Layout of the review**

Given the importance of the impact that retailing has on our society and its landscapes, this review section is an attempt at analyzing and extracting the key points from a wide range of literature which encompasses the theories and practices of such phenomena. Starting with a section on urban policy and its geographical study, the review begins to relate the policy implications not just to retailing practice, but also in its broad academic context within the study of geography.

The review then progresses to discuss the modern patterns of peripheral urban change, in what Garreau (1991) entitles the 'edge city'. Discussions on the works of Fishman (1987) and Lockwood (2001) are included to provide a broad dimension and to integrate the work within its wider geographical dimensions. Following this, the evolving patterns of geographical retail activity are examined, including a section on Schiller's 'waves' of retail decentralisation which provides the review with a clear picture of the patterns of retailing activity at the urban periphery. The review then moves on to discuss the parallel linkages between retailing and the regulatory state, probing government policies aimed at minimising the potential effects of peripheral retailing. Following this, location analyses are discussed in depth, beginning with the use of GIS in planning activities, and advancing to examine the theories underlining urban rent and location theories. The review then concludes by indicating the research gaps, and suggests possibilities for further study routes.

2.2 | **Urban policy and the application of geography**

The relationships between geography and urban policies hold a long history of association. Despite the announcements by Herbert and Thomas (1981; 1997) that geography and 'the urban' were relatively infantile in the mid-twentieth century, academic publications relating to urban planning policy are evident from the initial period of the same century. The early evaluation work of urban

planners, Patrick Abercrombie and Patrick Geddes on urban policy encompassed a broad range of geographical ideas into an otherwise urban planning research niche (Dehaene, 2004). Hall (1974) suggests that such associations have been pursued in a narrow-minded manner, and have assumed both 'descriptive' and 'positive' roles which – as illustrated later by Herbert and Thomas – manipulate models and provide factual surveys under specified ideal conditions, rather than by means of a normative function which promotes the kind of action which is needed to produce the best results (Herbert and Thomas, 1981). The descriptive role of the geographer, Hall (1974) states, is closely correlated with physical planning programmes such as urban redevelopment, planning control and the arrangement of land within cities.

Much geographical research concerned with urban policy is described as applied geography. The application of geographic academic research 'takes place outside the walls of the university and deals with real-world problems' (Hornbeck, 1989; 15). Such applied research, 'allied with the synthesising power of a geographical perspective, is a major advantage to those seeking to understand the complexity of modern urban environments' (Pacione, 2001; xxxvi). Consequently, applied geography is defined as the application of geographical knowledge and skills to the resolution of real-world social, economic and environmental problems (Pacione, 1999a; 1999b; 2001). Whilst there is no dispute surrounding Pacione's definition, it amplifies a significant difference between pure and applied geography. In effect, there is a vernacular relationship between the two, as illustrated by Frazier (1982; 17);

> 'Applied geography uses the principles and methods of pure geography but is different in that it analyses and evaluates real-world action and planning and seeks to implement and manipulate environmental and spatial realities. In the process, it contributes to, as well as utilises, general geography through the revelation of new relationships'.

The association between pure and applied research is illustrated clearly in various geographical based studies. In Guy's (1999) work on retail location analyses, for example, the interrelationships between various commercial location decisions are expressed with strong geographical references. Guy (1999) concluded that the methods used in retail location decisions are grounded in geographical principles and methods, although the final outcome is not always of greatest benefit to the geographer.

Applied urban geography has been growing in importance. The 'positive' roles of the applied geographer hold a more favourable perception with modern geographical study. There became a general awareness (Batty, 1978) that geographers could occupy an important role in the development of models of urban systems which linked movement with land use, such as the relationships between traffic flows, congestion and urban districts (Herbert and Thomas, 1982). The degree of sophistication of urban geographical research after this period continues to grow, and now utilizes mathematical and computer-based models in many aspects of geographical literature (Batty, 1978). In justifying the need for such sophisticated systems, Batty (1995) argues that social and city systems in particular are intrinsically complex and require diverse methods for their study and understanding.

Some topics of applied geography in the city revolve around the geographical intra-urban shifting of industry and/or commerce, the social patterns of gentrification and counterurbanisation, and even the impact of architecture on urban structure. The exploratory nature of the geographer is not however, matched in the planning literature. Luithlen (1997; 1399), for example, notes the descriptive character of planning research, suggesting that '...[planning] professionals tend to assume that without a genuine need, [they] would not be there and are not unduly bothered to justify their existence'. Whilst there is no doubt of the need for urban planners, there has been growing academic interest

in evaluating the performance and outcomes of the planning system (Grant, 1992; Morrison, 1978; Morrison and Pearce, 2000; Pearce, 1992).

The spatial and hierarchical organisation of retailing within the city has been the focus of applied research by urban and retail geographers. Some of their work has been focused on ways to develop methods of analysis and forecasting which can be used to enhance the profitability of commercial organisations in retailing (Guy, 1999). Such research has become informed by theories of consumer choice behaviour and strategic decision making by retail organisations (Guy, 1999) and is frequently erroneously known as 'marketing geography' (Brown, 1992). More recently, geographical techniques have been applied in town planning practice to assess the impacts of proposed retail developments on existing shopping provision (Bromley and Thomas, 1993; Guy, 1999). Recently, geographers have been at the forefront of research concerning the impacts of retail change on the creation of 'food deserts' and their adverse effects, particularly on the populations of local authority housing estates. It is generally accepted that food deserts occurring in British cities are the result of an expanding multiple food retail market (Guy *et al.*, 2004; Wrigley, 2002; 2004), and that the trend for new large stores selling a large variety of products is forcing the smaller, local stores to close down, depriving the less mobile residents of a community access to food provision (*Guy et al., 2004*). Such deserts are, however, not the sole responsibility of the large food retailers. Thomas *et al.* (2003) suggest that retail parks, such as those seen in the Swansea area, are having negative effects on the traditional systems of city, town and district shopping centres in British cities, especially as their development is now incorporating increasingly more high street retailers.

2.2.1 | **Geography and urban retailing**

Understanding the retail geography of a city involves understanding the whole urban geography. It is widely accepted in the literature that retailing '...exerts considerable influence on the morphology and functioning of Western cities'

(Bromley and Thomas, 1993; 2), and that 'retail activities play a growing role in shaping the environments which we all live' (Jones and Simmons, 1990; 7). Noting this, it must be declared that retail activities possess a strong spatial component. Thus, their study requires an understanding of spatial theories and models and some knowledge of the techniques of spatial analysis (Jones and Simmons, 1990; 7). Geography, therefore, becomes a key player in academic based retail study.

However, retail geography is studied using a variety of methodologies within the geographical literature (Davies, 1984). Instead, Davies suggests, there are separate study policies formulated for retail or shopping issues (Guy, 1998; Bromley and Thomas, 1993; Thomas, 1989), including wholesaling and warehousing (Johnston, 2000), location analyses (Applebaum, 1966; Brown, 1992; Clarke, 1998; Hernandez *et al.*, 1998; Simkin, 1990), the spatial configuration of consumer groups (Bromley and Thomas, 1993; 1995), and shopping linkages between retail establishments and parks (Bromley and Thomas, 1989; 2003). Having stated this, there is a key study policy which focuses on location analysis and can also be described as a concern for location, location, location (Brown, 1992).

This concern for location, location, location (Jones and Simmons, 1993) is a key factor in modern retail research, initiated by William Applebaum's (1966) work on store location strategy studies, with many authors (Brown 1992; Clarke, 1998; Clarke, 2003; Huff, 1966; Simkin, 1990) incorporating the approach into their research. Whilst there is a clear wealth of literature on retail location, Brown (1992) realises its main contribution is practitioner orientated, student centred or 'within edited volumes with all their inherited variability in emphases and treatments' (Brown, 1992; xiii). Further to his initial recognition, Brown comprehends the absence of '...an analysis of retail location at the *micro-scale*; that is, of considerations pertaining to the siting of outlets within planned shopping centres and unplanned shopping districts' (Brown, 1992; xiii).

Following these underlying principles of location theories and research foci, there has been a shift in the geographical literature since the mid-1980s to focus on the more generalised spatial patterns of retailing. By this period, urban geographical theory had evolved to generally accept that wider processes such as sociology, economics and politics affect retail patterns more dynamically than simply location factors (Brown, 1992; Guy, 1999). Particularly influential during this period was Schiller (1986) who recognised three 'waves' of retail decentralisation, beginning in the 1970s. Retail decentralisation has become increasingly prominent in the literature due to its huge economic impact on existing town centres (Thomas and Bromley, 1993), as are the guiding principles of modern urban policies focused on enterprise zones and out-of-town retail parks (Guy, 1998; Jones and Simmons, 1990; Thomas, 1989; Thomas and Bromley, 1987).

2.3 | **Retail change and out-of-town shopping**

Until the mid-1960s the retail system of British cities held a traditional hierarchical structure (Bromley and Thomas, 1993). The 'natural' home for retail activity (Guy, 1998a) was situated in the central business district (CBD), which provided the best locational factors in an urban centre, with a number of district or local centres which supplied '...a convenience goods shopping function and a secondary range of comparison goods for specific sectors of the city' (Bromley and Thomas, 1993; 6). At a lower scale still, neighbourhood centres provided goods for the immediate residential population.

Since the mid-1960s however, the traditional hierarchical structure has been radically modified, and retail 'decentralisation has become a particularly well marked feature of the urban environment' (Thomas and Bromley, 1987; 287). The development of retail warehouses in isolation on suburban, edge-of-town sites since the late 1970s (Jones, 1984; 41) continued in the 1980s; highlighted by Russell Schiller's (1986) article; *retail decentralisation; the coming of the third wave.* Noticing a change in consumer demands, rising affluence and patterns of

suburbanisation and counterurbanisation, Bromley and Thomas (1993; 6-7) record the shifting demand towards an increasingly specialised and sophisticated range of goods. Retailers were rapid in recognising the potential profit availability at such peripheral sites, and deviated from their typical inner-urban locations towards the peripheral boundaries (Guy, 1998; Thomas, 1989). Adding further magnetism to these sites were new government policies aimed at bringing inward investment to urban areas. The abatement of taxes, the application of capital allowances and the relaxing of planning constraints in such peripheral areas became a central discussion point in many academic journals (Bromley and Thomas; 1993; Davies, 1986; Schiller, 1986; Thomas, 1989).

2.3.1 | 'New' retailing; evolution or revolution?

The changing spatial patterns of commercial activities have become subject to close examination in the retail literature. Thomas (1989) notes that evolutionary features of retail change can be observed alongside the revolutionary, suggesting that both urban hierarchy and anarchy have together become appropriate descriptions of the 'new' retail structure. Providing an example of his evolutionary characterization, Thomas states '...the retail park...might arguably be regarded as a new type of small town centre or future hybrid regional centre' (Thomas, 1989; 212). In definition, retail parks '[u]sually do not form spatially integrated shopping centres but are loosely grouped at nodal points in the suburbs, frequently astride main arterial roads or on industrial estates' (Thomas and Bromley, 1987; 288). This fits perfectly with Thomas' (1989) later discussion of the evolutionary character of new retail activity in Greater Swansea. Thomas (1989) argues that the changing activities of retailing in Greater Swansea may be seen as more of an *evolutionary* front of retail development, rather than an urban *revolution,* as recorded in the work of Dawson (1983).

Although the literary disputes regarding the impacts of Regional Shopping Centres and retail parks are now largely settled (Lowe, 2000), the research suggests a lack of understanding surrounding the impact of new retail activities

on urban structure and vitality (Bromley and Thomas, 1993; Guy, 1998a; Schiller, 1986; Thomas and Bromley, 1995). Jones (1995) mentions the need to consider the geography of retail catchments of retail parks in the UK. Using the one hour drive time approach utilized by a number of retail planners, it is accepted that many retail parks may 'be brought into more direct competition with high street retailers as well as threatening full-price manufacturers' brands within central location stores (Jones, 1995; 280). In addition, further statements of anarchic retail activity have been brought to light in the work of Bromley and Thomas' work (1993), again, using the example of Swansea. Regarding evidence from the polarisation of shopping trips of the more affluent, relative to the orientation of older, conventional retail facilities, it becomes clear that the traditional urban centres are becoming increasingly reliant on the less affluent segment of the consumer market, which must undermine their long term economic health (Bromley and Thomas, 1993; 139).

The shift of retail activity, whether *hierarchic* or *anarchic*, throughout the urban district has been widely accepted and is subject to a vast responsive literature monitoring its change and effect over time. Occurring in a series of 'waves' (Schiller, 1986), the decentralisation of retail activity is the most highly documented phenomena.

2.3.2 | **The 'waves' of retail decentralisation**

Although there is little documentation of the early days of out-of-town retailing from large stores (Guy, 1998b), the 1970s (Guy, 1998a; Jones, 1984; Schiller, 1986), brought a shift in retail patterns and a subsequent profusion of literature arose. Four 'waves' of retail decentralisation have been observed and well documented in the literature (Fernie, 1998; Guy, 1998a; Hallsworth, 1994; Schiller, 1986; 1987; Thomas, 1989).

According to Schiller (1986; 1987), the first wave of retail decentralisation involved the food trade. As 'a natural extension to the development of self

service and supermarket trading in the convenience goods sector of the 1980s (Thomas, 1989; 202), large supermarkets were shifting to out of town sites – a process often funded by the sale of their older town centre units. Although superstore location is now largely a peripheral phenomenon, their effect on food sales on the main durable town centre is no longer a problem (Schiller, 1987; 18). Similar to Thomas' (1989) suggestions, this form of decentralisation has formed part of the new retail revolution – it is now commonplace for larger food retailers to occupy out-of-centre sites. Further to this revolutionary change, urban planners are welcoming the loss of food retail from town centres because of the relief it provides from congestion and car-parking pressure (Schiller, 1986; 1987).

Occurring five to ten years after the first wave, the second wave of retail decentralisation was at its height in the early to mid-1980s, probably aided by what Davies (1986) notes as a loosening of planning controls, and the minimising of the government's involvement in the market place. This decentralisation pattern involved what Schiller (1986; 1987) calls 'bulky goods' - namely those comparison goods which require a large retail floorspace, such as furniture and carpet warehouses, 'white electricals' and Do-it-yourself (DIY) stores (Jones, 1984). Similar to the first wave, the justification for moving to such decentralised locations becomes clear as such retailers require a larger floorspace than is available in a central location, along with the customer requirements for ease of access and near-by parking (Schiller, 1986; 1987; Thomas, 1989).

Schiller's second wave can be illustrated by changing retail activities in Swansea during this period. The '...occasional juxtaposition of superstores, hypermarkets and warehouses' (Thomas and Bromley, 1987; 288) on Swansea's urban periphery developed a significant reciprocal functional relationship, and quickly became what the literature calls an 'unplanned retail park' (Bromley and Thomas, 1989; Jones, 1995; Thomas and Bromley, 1987; 1993; Thomas, 1989).

Inevitably, the retail park expanded as customer flows grew. Thomas (1989) notes the developing range of goods on offer in such parks, to now include consumer goods such as clothing, footwear, toys and car accessories.

The literature – at least pre1984 – generally acknowledges that existing town centres would ride these first two decentralisation waves without undue hindrance (Schiller, 1987). In May 1984, however, the nation's then largest clothing retailer, Marks and Spencer, made the announcement of its plans to open a number of out-of-town stores in such decentralised locations (Schiller, 1987) inaugurating the third wave of retail decentralisation.

Directly following the second wave, the third '...wave is arguably the most interesting one, not least because it rose and collapsed in the space of a few years' (Hallsworth, 1994; 298), but also because it 'competes directly with the town centre (Schiller, 1987; 18). Similar to the work of Fishman (1987; 1996) and Garreau (1991), Schiller recognises the decentralisation of comparison shopping towards both fully accommodated regional shopping centres, and the fully equipped retail park. Although there was only one major out-of-town regional centre at Schiller's time of writing (North London's 800,000ft^2 Brent Cross), Schiller understood the potential impacts on existing town centres to be marginal. Since the opening of Brent Cross in 1976 (Lowe, 2000), and the subsequent opening of further developments (notably, the Metrocentre in Gateshead, Meadowhall in Sheffield, and the Trafford Centre in Manchester) such 'new centres have dramatically altered the retail landscape of the UK' (Lowe, 2000; 263), and are fundamentally altering urban geographies and creating new urban forms, not dissimilar to the ideas of the technoburb (Fishman, 1987; 1996) and the edge city (Garreau, 1991).

The evolution of the third wave was to develop into virtually nothing (Hallsworth, 1994). Although originally eight regional shopping centres were approved planning permission, there have been attempts since the early 1990s to

circumvent the strengthened planning restrictions of the Planning Policy Guidance notes (PPG's) by portraying these new shopping centres as the cores of new towns (Lowe, 2000). Where retail parks are concerned, there is a huge collection of literature covering the restrictive planning controls over such retail localities (Davies, 1986; Guy, 1998a; Hallsworth, 1994; Lockwood, 2001; Peron, 2001).

Literary accounts of the fourth wave of retail decentralisation suggest the fourth wave differed considerably in comparison to Schiller's initial three (Fernie, 1995; 1998). A 'more up-market, quality, but value for money image was being portrayed to higher disposable income groups' (Fernie, 1998; 305) by various new retailers. Whilst the introduction of these new formats coincided with the growth of discount retailing in the United Kingdom in the early-to-mid 1990s (Humphries, 1995), the notion was originally recognised in the United States in 1976 (Fernie, 1995). This 'value retailing' view was deemed appropriate to the British consumer market, hence it was widely accepted that this fourth wave would have more of an impact on British retail practice than the initial three waves (Fernie, 1995; 1998; Fernie and Fernie, 1997; Humphries, 1995). Likewise, airport retailing was seen as a niche activity of the fourth wave (Fernie, 1998), and it was generally accepted that such retail formats hold potential to generate sales volumes and values greater than those produced in the 'normal' shopping centre (Chesterton, 1993; Fernie, 1995; 1998; Humphries, 1995).

Similar to the third wave, Fernie (1998) notes the limited effect of the fourth wave, due to changing government planning policies and, perhaps more tentatively, 'the degree of acceptability of a US retail format into the UK retail market' (Fernie, 1998; 309). The changing planning policy notes (PPG6 and ppg13) have restricted planning permission on out-of-centre sites for such retailers (ODPM, 1996), and is well documented in Fernie's (1998) work;

> 'PPG13 aims to encourage development which reduces dependence on the use of a car for shopping trips, and the revised PPG6 of June 1996 deemed that comparison shopping such as that in factory outlet centres should be encouraged in town centres unless sites are available'
>
> *(Fernie, 1998; 310-311)*

Noting this, it is claimed that the fourth wave is breaking into a postmodernist phase, represented by the breaking into formats serving wide catchment areas (warehouse clubs and factory outlet centres) or those at locations where markets naturally congregate (airport and transport node formats).

Further retail waves

An increasingly common trend in contemporary retailing behaviour is that of out-shopping (Jarratt, 2000). Defined as 'the purchase of goods by consumers outside their local shopping area' (Jarratt, 2000; 287), it is widely accepted that car ownership is a critical factor in determining whether a consumer will rely on a nearby traditional centre, or whether out-shopping is a common feature of their shopping behaviour (Bromley and Thomas, 1992).

Retail decentralisation associated with the restructuring of convenience goods shopping as a result of the earlier development of out-of-town superstores has become increasingly pronounced in the literature. Contemporary food sales are dominated by national corporate retailers such as Tesco PLC, J.Sainsburys, Asda and Safeway (Bromley and Thomas, 2002), and their market supremacy has lead to the closure of many small, independent stores in numerous British district centres (Piacentini *et al.*, 2001). Evidence for this can be seen in South Wales, where '[a] combination of rising costs and increased competition from giant chain stores has seen ten thousand small shops close in the past ten years and the Association of Convenience Stores predicts a further thousand will go to the wall each year' (Herald of Wales, 2003b). These trends have been

associated with a growing problem of food deserts, particularly on local authority housing estates.

2.4 | New urban forms and edge cities

New urban forms have come to be identified in the literature. Extending from Schiller's decentralisation studies, Fishmans (1987) work, titled *Bourgeois Utopias: The Rise and Fall of Suburbia*, and more recently, *Beyond Suburbia* (Fishman, 1996) identifies a new kind of urban form located beyond the suburbs, which he innovately labels the '*technoburb*'. Although not providing a definition *per se*, Fishman provides a set of uniform characteristics visible in many of such areas;

> '...a peripheral zone...as large as a county, that has emerged as a viable socioeconomic unit. Spread out along its highway growth corridors are shopping malls, industrial parks, campus-like office complexes, hospitals, schools, and a full range of housing types. Its residents look to their immediate surroundings rather than to the city for their jobs and needs; and its industries find not only the employees they need but also the specialized services'
>
> *(Fishman, 1987; 184)*

This description, although based on a typical North American urban landscape, shares distinct similarities with the inner urban fringe that surrounds many British towns and cities. Whilst there is no argument regarding the agglomerative function of shopping malls, office complexes and industrial parks in British urban peripheries, we do not (at present) hold the provision of a more varied service sector in such locations. In the North American City, it seems, these technoburbs are a 'viable socioeconomic unit' (Fishman, 1987; 184); however in British cities, the concept fits more effectively as a dividing zone between what is fundamentally urban and the rural.

These new urban forms have been likened to some form of peripheral revolution (Thomas, 1989). Jones (1995; 278) observes the 'first embryonic factory outlet centre', providing evidence from as early as 1992 to the existence of peripheral 'new communities' incorporating leisure parks, model villages and even a vintage car collection in a Humberside retail park. This new concept is further reinforced by Johnston (2000), who states 'the new generation of out-of-centre and out-of-town business parks are adding in leisure facilities, crèches, hotels, local shops and conference centres. Some, like the Kingshill scheme at West Malling, Kent, are metamorphosing into fully-fledged new communities incorporating large numbers of new homes' (Johnston, 2000; 14-15). Further still, Lowe (2000) has also studied the extent that Britain's regional shopping centres are developing to accomplish a wider role than their primarily commercial function, similar to their American counterparts. Described as 'a private-sector city of the future' (Lowe, 2000; 265), Lowe includes a quote from Hopkins (1990) which states 'the West Edmonton Mall is not simply a *mega shopping mall*, but a mega *social* centre – a congregative centre that has inherited the role of the public for much of Edmonton's community life'. Perhaps 'what we are now witnessing in the UK with the regional shopping centres is the development of edge cities like those charted by Garreau in North America' (Lowe, 2000; 272). Extending from Fishman's technoburb definition, Garraeu (1991; 6-7) provides a classification of the term 'edge city', which includes 5 chief components;

1) 5 Million Ft^2 or more of leasable office space
2) 600 000 Ft^2 or more of leasable retail space
3) More jobs than bedrooms. When the workday starts, people head towards this place rather than away from it. Like all urban places, the population increases at 9am
4) Is perceived by the population as one place...a mixed use destination that 'has it all', from jobs to shopping, to entertainment
5) Was nothing like a city until as recently as 30 years ago

Empirical evidence of edge cities is difficult to find, and as Lowe has pointed out, it is difficult to match the exact figures of Garreau's office and retail space. However, many developments at the edges of towns and cities in the UK are also increasingly mixed-used and contain all the fundamental features of Garreau's characterization (Lowe, 2000; 272). In underpinning Garreau's contention of a 'mixed use destination that has it all', suggesting the provision of a social nucleus on the urban periphery, Bromley and Thomas (1993; 2) state that 'shopping also forms a necessary part of social interaction, [and] has gained widespread acceptance as an important element in popular culture'; as shopping is seen increasingly as a leisure activity rather than a chore, superstores are coming to be surrounded by other types of leisure development, such as restaurants and nightclubs. Furthermore, business parks, distribution depots and housing estates also appear within the urban-rural interface, often around the bypasses and motorway interchanges that it provides (Shoard, 2002; 123). Whilst this agglomeration of leisure and residential land uses may seem to be the future of urban life,

> '[t]here is, of course, a fear that provision of public facilities in the [urban-rural] interface would further hasten the depletion of town centres which is already so pronounced. The absence of basic facilities either encourages people to travel, usually by car, if they have the time, or it leaves them stranded in conditions we would not tolerate elsewhere'
>
> *(Shoard, 2002; 131-2).*

The future for edge cities is increasingly uncertain. Arguably, the rate of commercial development at the urban fringe is increasing despite moves to halt such development and refocus regeneration efforts within existing built up areas (Jones, 1995; Thomas and Bromley, 1987; Williams, 1992). The locational advantages of fringe sites, characterised by access, cost and space, will mean that they will continue to cater for the needs of specialist retailers, other

businesses and even industrial sites (Johnston, 2000). But the likelihood of different uses uniting on the urban fringe, to form such edge cities with a broad fusion of land-uses, is being underpinned in the arguments that such developments sit comfortably within many interpretations of what constitutes a sustainable development (Garreau, 1991; Lowe, 2000). If developers continue to successfully make the case for this form of urban extension, then self contained semi-urban units centring on commercial development may become a more regular feature of Britain's urban fringe.

2.4.1 | **The Polycentricity concept**

The issues of spatial clustering and dispersal of retailing within the city is by no means a new-found concept. Originally defined in the work of Patrick Geddes in the early twentieth century, the notion of Polycentricity, or the *urban field* (Friedman and Miller, 1965), is becoming increasingly popular and holds a growing popularity amongst both geographical and urban planning literature (Anas *et al.*, 1998; Gordon and Richardson, 1996; Bailey and Turok, 2001). Its 'elusive definition' Davoudi (2002; 114) states, means different things to different researchers. Urban planners use the idea as a strategic spatial planning tool, whereas geographers use it to explain a specific form of urban morphology and structure (Davoudi, 2002). Furthermore, '...civic leaders use the concept for place-marketing initiatives, presenting it as synonymous with dynamism, pluralism and multiculturalism, as well as a symbol of a modern lifestyle' (Davoudi, 2002; 114). Opposing Davoudi's lack of a single, pin-point definition, the ODPM states;

> 'The underlying concept is simpler than the pronunciation! A polycentric settlement pattern is one with many centres or nodes, not just one large metropolis dominating everywhere else. It means connecting different villages, towns and cities into networks, so that rather like a phone network, everyone on it can access the same facilities and reach everyone else'
>
> *ODPM (2004; 2)*

The application of the polycentricity concept changes when it is applied at different spatial scales (Bailey and Turok, 2001; Davoudi, 2002; ODPM; 2004). Three scales can be drawn out from the literature. Firstly, there is a small scale, city-periphery level notion, where the main focus is on the intra-urban patterns of population clustering and economic activity (Bailey and Turok, 2001; Davoudi, 2002), or the forging of rural-urban relationships to form new relationships between the core and the periphery (ODPM, 2004). Secondly, at an increasingly larger scale, polycentricity has been exercised at the inter-urban scale to denote the existence of multiple urban centres in a single region. This can be seen in Hall's (1974) work on the 'megalopolis', which is becoming increasingly evident in Britain's ever-expanding urban core. At a third 'pan-European' scale, the concept is applied to promote an alternative to the dominant core-periphery conceptualisation of the European territories, and to allow the access of nationwide peripheral locations. This is testified by the ODPM (2004; 2), which states '...there will be new gateways of entry to different points of the continent and new hinterlands, and scope to grow groupings of settlements across borders towards the economic critical mass that they could never achieve in isolation'.

The extent of these patterns leads Davoudi to discuss and define the polycentric notion of urban growth. Driven by the shifting economic relationships between firms, economic agglomeration between employment and population and the tendency of firms to cluster when spatial interaction costs are high, the patterns suggested are visible not only in the urban analysis literature, but also to some degree throughout the retail literature. There is a lack, however, of a distinct body of text which attempts to analyse the patterns of modern polycentric patterns. The foremost centre of attention is on qualitative analyses and research methods, rather than numerically recording or physical mapping techniques at the inter-urban scale (Davoudi, 2002).

For the purpose of this review, however, the intra-urban scale is of most importance. At this level, it is generally accepted that the polycentric city often consists of a larger centre and a number of concentrated sub-centres with high population and employment densities (Bailey and Turok, 2001; Davoudi, 2002). In Davoudi's article, the difference between the monocentric and the polycentric city is defined. The monocentric model, in its simplest form, differs from the polycentric concept, as it describes the city as being a circular residential area surrounding a central business district within which all jobs are located (Davoudi, 2002). The monocentric model, Davoudi states has become increasingly irrelevant in the face of increased mobility, economic decentralisation, a growing multiplicity of travel patterns, and changes in household structure and lifestyles.

2.4.2 | **Economic Agglomeration**

The literature discussing clustering and agglomeration of economic activity is limited and only a few key issues can be highlighted for a retail-based text. An important initial consideration is that from the earliest interest in clusters, most previous research and attempts at theory-building have been dominated by a preoccupation with manufacturing industry and industrial clusters, rather than the agglomeration of retail activities (Bergsman *et al.*, 1972).

The tendency for economic activity to become concentrated in certain peripheral urban areas has already been distinguished in the previous section on the theories of polycentricity. Whilst urbanisation itself maybe seen as a wide-scale agglomeration process which has remained almost commonplace in the urban geographical literature, the patterns of economic clustering at an intra-urban scale are not so abundant in academic script. Bergsman *et al.* (1972), following previous study techniques, introduced the need for a different research agenda surrounding urban agglomeration, stating that '[a] really comprehensive theoretical statement has yet to be achieved, and empirical studies are far from satisfactory' (Bergsman *et al.*, 1972; 263).

More recently however, following the various governmental White Paper's on urban competitiveness (Johnston, 2000), a more varied literature has arisen which incorporates the patterns of clustering and agglomeration. Although primarily based in an industrial backdrop (Castells and Hall, 1994; Johnston, 2000), there is becoming a propensity for retail geographers to focus on the operational implications of locating in an assemblage of similar merchants (Brown, 1992; Bromley and Thomas, 1993; Schiller, 1986; Guy, 1998b).

The spatial benefits of clustering and agglomeration are highly contested in the literature. Brown (1992; 78) observes the literature on retail agglomeration practice as being generally negative, with many articles concluding that clustering is 'socially wasteful' and that firms (when not colluding) engage in destructive competition. Thus, Brown states, 'the literature fails to incorporate the positive externalities or the cost reducing benefits that flow from spatial propinquity' (Brown, 1992; 78). Having stated this, there is literature which recognises the fact that agglomeration achieves more than just competitive advantage for the retailer. Other impacts such as employment creation (Johnston, 2000), ease of access (Bromley and Thomas, 1989; Lockwood, 2001) and reduced shopper uncertainty due to the comparison process (Brown, 1992; Guy, 1998a) are well documented in retail research.

2.5 | Retailing and the Regulatory State: attempts at control

Retail land use changes in Britain have been considerably more measured, far-reaching, deep-seeded and complex than those envisaged in the literature of the 1970's (Cowan, 1973; MacEwan, 1976; RTPI, 1976). One exception to this is offered by Hall (1974) who notes the pace of urban growth as being 'unprecedentedly rapid'. The 1990s saw the revision of governmental planning policies to restrict off-centre retail developments, and 'evidence of a tentative

increase in number of applications for town centre retail development' (ODPM, 2004) occurred as a result of such amendments.

Land use planning policies in Britain have played a major role in shaping the pace and nature of retail development (Guy, 1998a). Johnston (2000; 14) notes the growing demand for commercial property in the United Kingdom, and mentions the fact that fewer land-owners are releasing their land, consequently resulting in the occupation of greenfield sites. This is especially the case in the South East (see for example Schiller's (1986) work on Brent Cross), despite the increasingly restrictive patterns of restraints imposed on such land by local authorities (Hallsworth, 1994). Such new development increases the decentralisation process.

Extending from this, retail and land use planning legislations have had a significant impact on commercial developments. Grant (1992; 3) realized the requirements for a firm legal and knowledge driven basis on which to establish an effective land use planning system, underpinning the need for a '...system which provides the mediation machinery through which the state will define the circumstances under which land development is allowed to occur'. This 'meditative machinery' idea is both reinforced and questioned by Pearce (1992; 14) who states; 'within the British planning system there are a number of official aims and objectives, defined by local government. However, Pearce explains, responsibility for operating the system is divided, between central, local and *ad hoc* government agencies. This is reinforced with added negativity by Davies (1986; 20) who states '[t]here seems to be no policy (or series of policies) in the sense of a co-ordinated body of land use controls that deals consistently and rationally with the entire spectrum of the retail trades'.

Ten years later, Pennington (2002; 30) acknowledges the lack of a single use body, suggesting that 'rather than being centralized in a 'single super planning agency', the necessary knowledge is divided between a variety of agents which

may include government departments dealing with a range of policy areas, private sector actors and various interest groups' (Pennington, 2002; 30). Having stated this, however, the planning system is to certain degree centralized by the Planning Policy Guidance Notes (PPG) supplied by the Department for the Environment, Food and Rural Affairs (DEFRA) and by the National Assembly for Wales (Planning Policy Guidance Notes, 2002 and Planning Policy Wales, March 2002 respectively).

Similarly, the retail planning process is equally legislated by a number of such *ad hoc*, localised agencies. Initially, Guy (1998a; 306) states, planning policies adopted a cautious, almost protective approach to retail planning, with means to restrict off-centre development for food retailers, and to offer incentives to the outlets of Do-It-Yourself (DIY) and other 'bulky goods'. However, as the requirements of larger commercial outlets have changed over time, as have retail planning policies. This is illustrated in Thomas' (1989) article on retail evolution and revolutions in which he states that 'the locational requirements of most superstores, hypermarkets and retail warehouses have...stressed the need for ease of access and parking, along with the financial advantages of low site costs' (Thomas, 1989; 202).

Over time, 'successive governments have attempted with varying degrees of vigour to avoid the decline of city centres and other traditional shopping patterns' (Thomas and Bromley, 2003; 49). Research surrounding government policy for the control of off-centre retailing in the UK is well understood and is documented meticulously in the literature (Guy, 1994; 1998a; 1998b; Howard, 1995; Peron, 2001; Thomas, 1989; Thomas and Bromley, 2003). Other major concerns underlie the impact that an off-centre retail park may have on nearby town and city centres (Bromley and Thomas, 1993; Guy, 1998b; Thomas and Bromley, 1995). Throughout the 1980s, it was commonly acknowledged that such off-centre developments should go ahead, unless it could be proved on available evidence that they would contribute a significant negative impact to the

performance of the existing town centres (Guy, 1995; 1998a; Thomas and Bromley, 1993; 2003). The now dated (Johnston, 2000) Planning Policy Guidance Note 6 (PPG6) (ODPM, 1996) has concentrated developers' operations repeatedly

> 'to town centre or edge of town sites in order to retain the vitality and viability of the existing centre. Only if such sites were unsuitable or unavailable would out-of-centre sites be considered'
>
> *(Thomas and Bromley, 2003; 49)*

The government's role in retail planning is one which is frequently disputed in the literature. Further restrictions on off-centre retailing have been employed by government initiatives to control the types of goods sold (Guy, 1998a; Jones, 1984; Thomas, 1989), and the controlling of opening hours (Davies, 1986). The conclusions which are frequently reached, however, are that such planning policies are to an extent controlled by the land use demands of the retail organisations, or, at least, Davies (1986; 20) states, there is 'no policy...in the sense of a co-ordinated body of land use controls that deals consistently and rationally with the entire spectrum of the retail trades'.

In contrast to the work surrounding government efforts to limit off-centre growth, Johnston (2000; 15) argues that out-of-town sites are still the preferred choice for both commerce and industry, declaring that 'high value [land] uses like retail are needed to 'pump-prime' infrastructure provision for commercial schemes, rather than being an attempt to dodge the government's policy presumptions against out of town retailing'.

2.6 | **Government IT; another sword for the planner?**

The association of geography and urban policy has been further strengthened by the application of and modern geographical software. Observations surrounding the applications of GIS and planning practice are frequently

included in both planning and academic literature (Batty, 1995; Couclelis, 1991; Harris, 1989; Sholten and Stillwell, 1990). In Harris' (1989; 86) article, the administrative characteristic of town planning is noted, and mentions the way in which 'GIS provides the planner with the capacity to map land parcels and to follow events in the development process'. Strengthening Harris' arguments, Batty (1989) described how planning could be likened to a form of parallel distributed computation, with a more efficient final output where information can be easily stored, organized, manipulated and displayed. It becomes clear then that GIS, even in its preliminary development stages, 'has become an umbrella concept for all automated systems that integrate and handle geo-referenced information' (Ottens, 1991; 17).

Geographical software in planning are systematically known as Planning Support Systems (Batty, 1995) or spatial decision support systems (Benoit and Clarke, 1997). The term Planning Support Systems (PSS) was generated as an analogy to the more frequently used expression Spatial Decision Support Systems (SDSS) (Batty, 1995). Batty (1995) notes the introduction of PSSs as being an attempt to broaden the scope of computation within general planning practice, bringing together the processes of many urban systems into one manageable package (Batty, 1995). This idea, however, was foreseen by Harris (1989; 86) who states '[v]irtually all aspects of the efficiency of the city and their quality of life have spatial dimensions that are defined in the light of the interaction between various parts of the urban system'. Noting this, Batty (1995) defines a PSS as a

> '...way of characterising the planning process based on the insights acquired over [time] from a variety of perspectives concerning explicit rationality but with the new spatial technologies of data handling [with] GIS playing a key role'
>
> (Batty, 1995; vii)

There is a tendency in the literature to over look the integration of GIS analysis using local, central government and academic research (Russell, 2003). Despite this, Gill (1999) notes that there is considerable scope for increasing the amount, depth and extent of joint local-government-academic project work. Gill goes on to conclude that research and data sharing among these entities needs to increase if GIS analysis is to be fully incorporated into urban planning.

2.6.1 | **GIS and retail Planning**

There is a limited, but growing body of literature encompassing the use of GIS in retail planning activities (Benoit and Clarke, 1997; Clarke, 1998; Goodwin, 1997; Grimshaw, 1996; Hernandez and Bennison, 1997; Ireland, 1994). Although academic research has made an enormous contribution to applied problem solving in the areas of retail planning and marketing (Clarke, 1998), attention is persistently focused on this study niche, and there has been little exploratory interest surrounding the intra-urban, quantitative mapping of the shifting behaviour of retail activity using GIS technology (Clarke, 1998; 1999).

The expanding literature, however, 'contains a predominance of purely descriptive or highly theoretical work' (Simkin, 1990; 33). Thus, there is as yet no clear attempt at challenging the compatibility of GIS with retail location analyses and procedures. The inevitable exception to this generality is offered by Benoit and Clarke (1997; 250) who state 'GIS has almost reinvented [the] problems of [simple overlay mapping of spatial data] and provides no solution to them'. In this sense, therefore, GIS is using outdated methodologies to drive its fundamental spatial analysis techniques. In addition, the fact that research is concerned with the lack of robust spatial analysis routines in many retail based GIS packages (Benoit and Clarke, 1997) is becoming increasingly apparent.

Retailers in the UK are increasingly recognising the importance of more sophisticated market and site location analyses, especially as it becomes increasingly evident that many consumer markets are moving closer to

saturation (Benoit and Clarke, 1997; Goodwin, 1997; Ireland, 1994; Penny and Broom, 1988). As Grimshaw (1997; 106) states, 'for many retailers, it is thus less a question of entering a new geographic region, but more a problem of finding viable retail sites in an increasingly saturated market'. Various studies (Penny and Broom, 1988) have realised this potential problem, suggesting that 'location planning has taken on a new urgency' (Hernandez and Bennison, 1997; 20), with many articles stating the emergence of GIS as a technology that provides valuable information which supports the retail location decision-making process (Grimshaw, 1996; Goodwin, 1997; Hernandez and Bennison, 1997).

2.6.2 | Evolution of retail site location systems

The process of retail site location has been assisted greatly by a variety of decision support systems (DSS) and a number of mathematical models (Clarke, 1998; Hernandez *et al.*, 1998; Simkin, 1990), the majority of studies commencing after William Applebaum's work in 1966 (Clarke, 1998). The evolving sophistication of retail decision support systems is well documented in various studies (Byrom, 2000; Clarke, 1997; Hernandez *et al.*, 1998). Clarke (1998) identifies three phases of changing methodology within such systems.

Phase 1: development

Applebaum (1965; 1966) dates the earliest attempts at evaluating store location sites to the early twentieth century. Although he reviewed a variety of 'pioneering studies' (Applebaum, 1965; 234), Clarke (1998) suggests that the majority of retailers in the 1960s and 1970s were relying on 'gut feeling', 'checklist' or 'analogue' techniques for site evaluation (see also Birkin *et al.*, 1996). During this period, Huff (1966) stated that human judgement plays an important role in arriving at a sales estimate, and therefore, a reasonably well justified site location decision.

The basic process of the analogue technique, according to Clarke (1998) and Simkin (1990) involved attempts to forecast the sales of a new store by drawing comparisons with other stores in a similar corporate chain that are alike in physical, locational, and trade area circumstances. This checklist approach was simply a list of factors which must be considered during a field study of a proposed location (Simkin, 1990). Intuitive, gut-feeling (*Clarke et al.*, 2003) procedures are usually thought of as the most simple of the evaluation techniques, as it involves an on-site decision made by a senior member of staff who obtains a feeling for a site through a particular location (Clarke, 1998).

As highlighted in the work of Clarke (1998), Hernandez *et al.* (1998) and Simkin (1990), there are a number of drawbacks to these early techniques. Firstly, such techniques evaluate sites in isolation, without considering the full impact of competition or the company's global network (Clarke, 1998). Extending from this is the problem of the heterogeneity of sample stores. That is, how easy is it to find a sample of stores which have similar trading characteristics and catchment areas (Hernandez *et al.*, 1998). Thirdly, there exists what Clarke (1998; 291) calls the *'multicollinearity problem'*. In this case, a number of seemingly independent variables may be directly correlated against each other – for example, floorspace and car parking space variables will possess a strong correlation with each other. If an outlet requires a large floorspace, then car-parking space would have to be minimised, and vice-versa (Clarke, 1998).

Phase 2: Introduction of GIS to modelling location decisions

Early retail location decisions were based on crude 'gut-feeling' methods (Byrom and Bennison, 2000). During the 1980s and 1990s however, more complex, sophisticated techniques became available to support location decisions (Batty, 1995).

Although the techniques of the first phase were being widely exercised up to the late 1980's (Simkin, 1990; Clarke *et al.*, 2003), there was a distinctive shift

during this period towards incorporating more sophisticated analysis techniques (Clarke, 1998; Hernandez *et al.*, 1998). It is generally accepted that the simplicity of undertaking checklists has been increased by the availability of GIS (Grimshaw, 1996). The geocoding of information regarding demographic catchment areas and other locational information allowed the exploration of population type against a particular site, providing all the relevant information to calculate potential revenues for a new store (Clarke, 1998). This simple overlay technique is well-documented in the work of Ireland (1994), who uses the case study of Marks and Spencer, and Goodwin (1997), who discusses the analytical power of GIS and geodemographic datasets for Boots the chemists'.

> 'The [Boots] location and development research unit can now look at population growth, average spending and the demographic status of any area and simultaneously look at any possible threats. These may include the expansion of a town near a potential site, plans for building a shopping centre or the construction or closure of a significant arterial road'.
>
> *Goodwin (1997; 17)*

Similarly, Ireland (1994) provides a comparable view, suggesting;

> 'GIS serves primarily as an analytical tool for site assessment, and, as such...business likes to regard [its users] as 'honest brokers' – as scientists taking an objective, independent view. [GIS] lets the numbers tell their own messages, rather than relying on 'gut feel''
>
> *Ireland (1994; 27)*

Whilst the use of GIS in retail planning is increasingly popular, there are drawbacks with its use. Two principal problems can be distinguished. Firstly, there is a definition problem surrounding the geodemographic catchment area.

'The presence of a competitor will mean the real geographical catchment area of a new store will be highly skewed in certain directions' (Clarke, 1998; 293). Secondly, no GIS can predict competitor practices and changes effectively (Ireland, 1994), neither can they estimate changes in consumer spending.

Phase 3: increasing sophistication of location systems

There is an abundance of arguments surrounding the third evolutionary phase in the practice of retail site location. The increasing saturation of retail markets (Benoit and Clarke, 1997; Goodwin, 1997; Ireland, 1994) is disputed to render store location research as redundant (Clarke, 1998). However, it is contested that the 'increasing sophistication of retailing may result in a greater need for store location research, rather than less need' (Clarke, 1998; 295). Adding to this is Clarkeson's *et al.* (1996) claim that response of retailers to market saturation will either be internationalisation or store refurbishments. Nevertheless, what is required, is a more flexible *local* response to these trends (Clarke, 1998; Hernandez *et al.,* 1998; Ireland, 1994), in order to increase a competitive edge over the competition (Clarke, 1998). 'The pursuit of an optimal location strategy has the potential to provide such an edge' (Clarke, 1998; 297).

2.7 | Location, rent and rates theory

An expanding literature exists enveloping various theories of urban location analysis (Alonzo, 1964; 1967; Berry *et al.*, 1987; 1997; Brown, 1992; Jones and Simmons, 1990). Such studies are an applied method used to aid the understanding and insight which underline the solutions of actual urban locational phenomena. Whilst such literature is relevant to this section, there are few studies which encompass location and rent theory in relation to retail land uses.

The location of multiple retail and service outlets in a UK context has been a continued focus of interest across the disciplines of marketing and geography

over the last 25 years (Byrom and Bennison, 2000). Jones and Simmons (1990; 19) have recognized two distinct traditions in location analysis; the theoretical (academic) and the applied (practitioner). Dating from the original works of Christaller (1933 [1966]) and Losch (1939), the *academic* tendency is to study the way in which retail activities are located in order to serve a regular distribution of demand. Contemporary academic work, however, focuses on the way in which human behaviour and irregular economic markets can also affect the retail industry (Clarke, 1998; Smith and Sanchez, 2003).

The work of the *practitioner* can be traced back to Applebaum's (1966) work titled *Guidelines for a store location strategy study*, where key methodological traditions stem from site selection policies, concerns for competition and market share. Currently, the practitioner's work is centred on general models and frameworks for seeking answers to complex location decisions (Jones and Simmons, 1990) brought about by heightened competition (Byrom and Bennison, 2000; Goodwin, 1997; Ireland, 1994) and increasingly restrictive land use planning constraints (Adams *et al.,* 2001; Bingham, 2001; Fernie, 1998; Morrison and Pearce, 2000; Pearce, 1992).

Modern studies and research analyses are established on the fundamental principles conceived by various influential authors. Von Thunen's work on agricultural rents present principles of lasting value that today still serve as the foundations of land-use theory (Berry *et al.*, 1987). Similarly, Christallers Central Place Theory can be adapted to describe the number, size, spacing and functional composition of retail centres on a micro-economic basis (Brown, 1992). Although the 'admittedly improbable' (Brown, 1992; 40) assumptions of central place theory (the uniform distribution of identical, equally affluent, fully informed consumers) may not hold true in the more modern literature, it has been manipulated to predict that due to the increasing costs of transport, the demand for a certain good declines regularly with the distance from the source of supply. At a certain peripheral point, demand will drop to zero; this point is

known as the 'market range' of a good. This can be reflected in rent theory and its reflection on the organisation of urban space (Hanink, 1997; Berry *et al.*, 1987; 1997) (figure 2.1).

Similar to the means that demand for a good is highest where supply is at its centre, the centre of accessibility serves the same context in the urban landscape context; by definition, Hanink (1997; 50) states, '[central place] is where costs of local spatial interaction are minimised, so that location rents are maximised'. To provide further definition,

> 'many retail businesses, for example, need to be easily accessible to a large number of customers. They are willing to pay relatively high prices to occupy sites with high levels of access because such sites improve there general business prospects...Ultimately, it involves the weighting of the costs and benefits of a particular location against the costs and benefits of another location'
>
> Hanink (1997; 51)

There is, therefore, a direct correlation between the quantitative theories used by rent theorists and the procedures of GIS used by retail organisations.

It has been recognised (Alonso, 1967) that rent and location theories are associated, although the linkages are often elusive. The key to their difference seems to be that rent theory deals with competition for the use of space, whereas location theory represents the business as a dimensionless point to be placed on a map (Alonso, 1967).

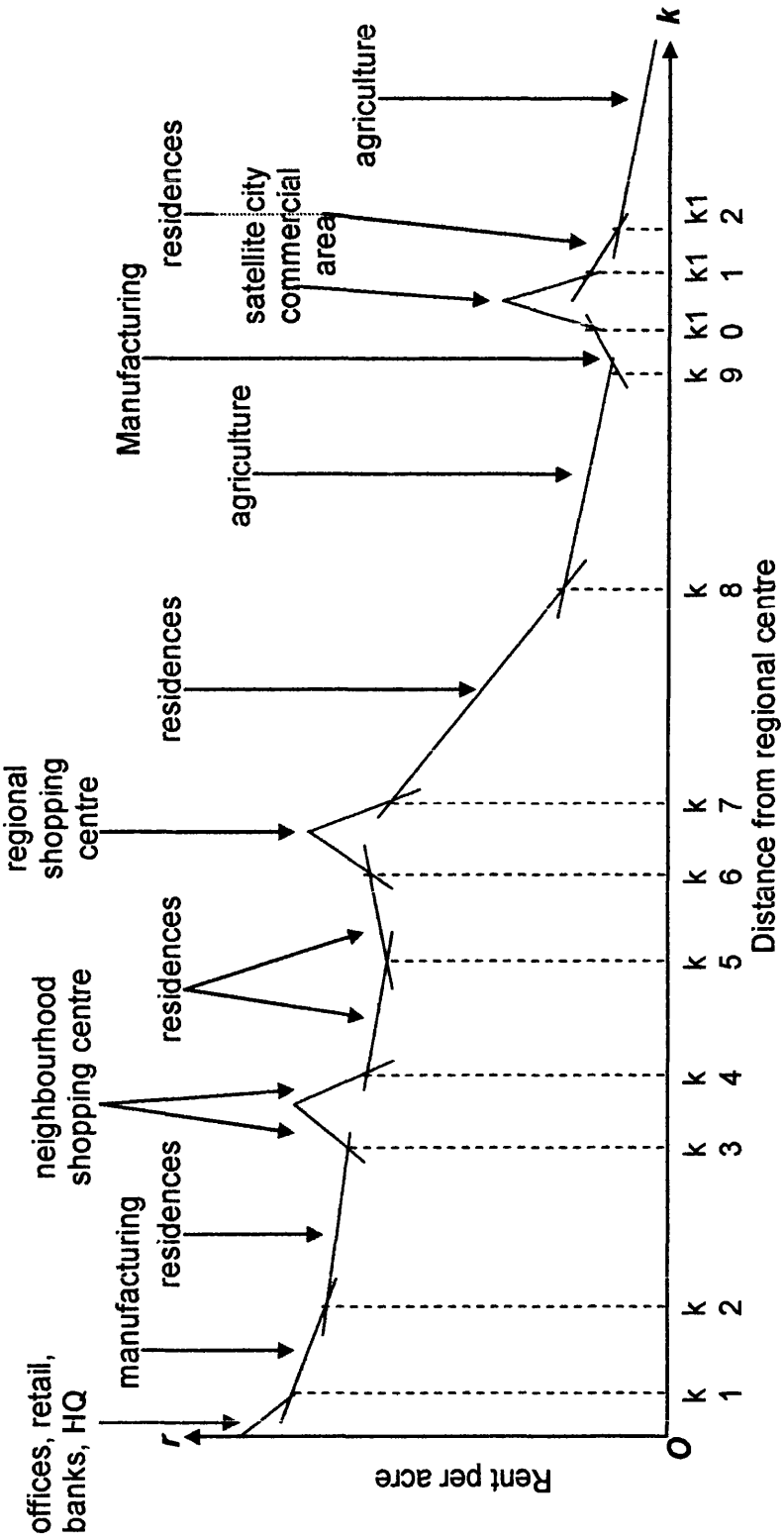


Figure 2.1: **Hypothetical land-rent profile in a multicentred urban area**

Source: Berry *et al.* (1987)

The correlation between retail activity and urban rents has been summarised effectively by Guy (1997). Stating that retailers are obviously in business principally to sell goods to consumers, they are also owners of many thousands of buildings, and some extremely valuable areas of land. With amplified relevance to this review section, however, Guy states 'a company's policies for land acquisition, valuation, and disposal can have major impacts on its balance sheet, and can become important influences on urban spatial change' (Guy, 1997; 1449). Further still, there has been surprisingly little interest in the topic from academic researchers in the United Kingdom. Additionally, there have been few noticeable endeavours to relate rent and location theory to the modern occurrences of urban decentralisation and peripheral agglomeration seen in many urban regions of the United Kingdom.

2.8 | Conclusions

The academic community has been vigorous in analysing patterns of urban change. As a subject niche, the study of retail activity in the context of urban change has generated a vast bibliography of published literature. Despite the expanding wealth of related studies, there are a number of distinct 'gaps' in the literature which embrace potential for research study.

Commercial development is a major contributing driver of urban change. The changing locations of supermarkets, retail parks, business and technology parks, and other commercial nodes have all become commonplace in the literature surrounding urban geography. Although it is generally accepted that retail activities are continually changing geographically, a close examination of this descriptive literature establishes a sense of minimal quantitative analysis using techniques which are used throughout both locational analyses and geographic disciplines, such as the physical mapping and data analysis techniques available within a GIS system. As Brown (1992; 229) states, the 'dispersed and agglomerated patterns of retail activity may be all-pervasive, but it is insufficient simply to note their presence. An attempt to account for the

existence of these spatial phenomena must also be made'. Further evidence of this lack of quantitative study methods is supplied in the work of Bergsman *et al.* (1972), who noted the unsatisfactory quantity of empirical studies encompassing urban agglomeration.

Further research gaps can be observed at smaller scales. Comprehending the absence of '...an analysis of retail location at the *micro-scale*' (Brown, 1992; xiii), Brown illustrates the deficiency of understanding pertaining to the siting of outlets within planned shopping centres and unplanned shopping districts.

Although academic research has made an enormous contribution to applied problem solving in the areas of retail planning and marketing (Clarke, 1998), attention is persistently focused on this study niche, and there has been little exploratory interest surrounding the intra-urban, quantitative mapping of the shifting behaviour of retail activity using GIS technology (Clarke, 1998; 1999). Simkin (1990; 33) also realised this 'predominance of purely descriptive or highly theoretical work'; and noted there being as yet no clear attempt at challenging the compatibility of GIS with retail location analyses and procedures. In addition, the fact that research is concerned with the lack of robust spatial analysis routines in many retail based GIS packages (Benoit and Clarke, 1997) is becoming increasingly apparent. The prospects for studying the possibilities of academic based GIS research integrated with local authority work is reinforced by Gill (1999) who found there was considerable capacity for increasing the amount and extent of joint local government and academic project work.

There is substantial scope for studying the location of retail activity within an urban area. Following Guy's (1997) suggestion that 'a company's policies for land acquisition, valuation, and disposal can have major impacts on its balance sheet, and can become important influences on urban spatial change', retail land use change can be mapped and analysed using GIS technologies which

are, as yet, significantly overlooked in academic research regarding urban retail activities.

Further still, there has been surprisingly little interest in the topic from academic researchers in the United Kingdom. Additionally, there have been few noticeable endeavours to relate retail change to the modern occurrences of urban decentralisation and peripheral agglomeration seen in many urban regions of the United Kingdom. The lack of modern research relating to the geographical patterns of modern urban retailing in parallel with the more general patterns of urban change allows a number of research pathways to be explored, especially when incorporating GIS spatial analyses.

3 | Methodology

3.1 | Introduction

The literature review established how retailing has undergone an intense intra-urban spatial transformation during the last few decades. The majority of the previous research monitoring this transformation uses qualitative methods, and there is consequently little quantitative research examining the spatial shifts of retail activity using a GIS (Clarke, 1998; 1999). GIS is widely used to support many different research projects in which there is a requirement to process geographically referenced data, particularly where a number of disparate data sources must be integrated (Martin, 1997). Geographical information systems in this sense are characterised as a toolbox of spatial processing functions (Longley *et al.*, 2001), rather than as a single tool for geographical analysis (Martin, 1997). The purpose of this section therefore, is to contribute and to explain the analytical methodologies involved in gaining an understanding of changing retail patterns in a predominantly quantitative manner using GIS technologies.

Due to the lack of research surrounding business rates and GIS when examining retail change, a working methodology must be produced. In order to do this, a number of sequential objectives are pursued. Firstly, the processes of secondary data collection and availability are explained, and their utilization within a GIS is characterised. Secondly, spatial statistical analysis techniques used in the study are outlined, with a particular emphasis on how such tasks are performed within a GIS. Thirdly, primary data collection methodologies are explained, and an explanation of qualitative data collection techniques by process of interviewing key informants is described. Thus this research adopts a multi-method approach to research.

3.2| Data Collection

As geographically based secondary data comprises a large part of the research used in this study, data availability and collection is a major point of consideration. The secondary data used in this study have been provided by a number of local authority sources. The business rates section of the City and County of Swansea has supplied commercial information, including Non-Domestic Rates (NDR) data. This information was provided in the form of Rating Lists, which for the purpose of this research cover the years 1990 and 2000, allowing retail change to be studied between these two years. Planning guidance information was provided by the Town and Country Planning Department of the City and County of Swansea, as were the vast amounts of digital information files used within the GIS databases. Various other data files suitable for use within a GIS are available online through various specialist GIS data suppliers. Ordnance Survey have provided a number of digital datasets which allow the spatial information to be visually represented.

Primary data was gathered through the undertaking of interviews with a number of informants who practice in both public sector organisations and in academia. Key informants in this case include research officers, senior planning officers, and academics. The results from this qualitative data will help to explain any changing retail patterns. The details of these interviews is explained below.

3.3 | Business Rates; an explanation

Non-domestic rates (NDR) are the means by which businesses and other users of non-domestic properties contribute towards the cost of local authority services. Rates are calculated on an individual property basis, where 'each property is periodically assigned (or revalued) a revised net annual value' (Robertson and Jones, 1999; 56). Such rates are paid by the owner or leaseholder of a non-domestic property, which generally are defined as

commercial properties, such as shops, offices, warehouses, factories and all other non-domestic premises which are liable to council tax.

The non-domestic rates system was significantly reformed in April 1990 (Bond *et al.*, 1996). In England and Wales, this meant the replacement of locally varying tax rates (poundages) by a uniform, national non-domestic rate (multiplier). During this alteration, all properties were revalued to assess the tax base (rateable values) for the first time since 1973. As a result of these two changes, large changes in business rates affected many properties, although the actual impact was cushioned by a transitional relief scheme which limited the size of annual increases and decreases affecting any particular ratepayer (Bond *et al.*, 1996). Noting these changes, business rates data for the Swansea billing authority were gathered for the years 1990 and 2000. This allowed an analysis of the retail changes evident from data held within the business rates data since the 1990 reformation.

The rates payable for any commercial property are determined by the Rateable Value of the property multiplied by the Uniform Business Rate (UBR) or multiplier which is set by central government (Bond *et al.*, 1996; Chesterton, 2005). Every domestic property, unless it is exempt[1] (NAW, 2004), also has a rateable value. This monetary figure is based on a professional assessment of the annual rent of a property if it was available to let on the open market at a fixed valuation date. All properties are valued using this method from the same date by the Valuation Office Agency (VOA) to ensure that they are assessed on a level basis. Uniform business rates are set annually by central government to determine the percentage, expressed as pence in the pound, of the rateable value of a property which the owner or occupier will have to pay in the form of business rates. The UBR is altered annually to reflect changes in economic inflation.

[1] Exempt property includes farm land and buildings, churches, sewers, public parks, properties used for the disabled and moveable moorings for water based transport.

These UBR's are used to calculate the rates bill (*B*) for a non-domestic property by multiplying the rateable value (*RV*) by the set UBR (*M*) for the current year, and by applying any relief (*R*) to which a premise occupier may be entitled (figure 3.1).

$$B = RV \times M\,(-R)$$

Figure 3.1: **calculating business rates**

Relief comes in two forms; mandatory and discretionary. Mandatory relief is given to those organizations which operate on a not-for-profit basis, but operate within non-domestic properties. Registered charities usually come under this heading. Discretionary relief may be granted up to 100% to certain bodies or organisations who are not conducted for profit and whose main objects are charitable or are otherwise charitable, religious, concerned with education, social welfare, science, literature or the cultures (ODPM, 2004). All of the key data available to the public regarding business rates are found in the Rating Lists.

The Rating Lists

Rating lists are documents published every 5 years by the VOA. The lists act as a point-of-reference for both public and official use, and provide details of every non-domestic property within the boundaries of the billing authority. Figure 3.2 shows an example of the arrangement of details in the lists. The layout is the same for ease of assessment and comparison each year the lists are published.

1995 Rating List for the Billing Authority of 6855 Swansea

2	2	3	4	5	6	7	8
Code	Description	Address	Pcode	£GT £RV	Effective Date	List Alteration Date	Settlement Type
CS10	Retail Warehouse and Premises	Unit 1 Parc Tawe North	SA1 8AW	2525000	03.10.97	27.10.99	
CS10	Retail Warehouse and Premises	Unit 2 Parc Tawe North	SA1 2AL	74500	01.07.99	23.10.00	
CS10	Retail Warehouse and Premises	Unit 3a & b Parc Tawe North	SA1 2AL	145000	03.10.97	29.09.00	
CS10	Retail Warehouse and Premises	Unit 4a Parc Tawe North	SA1 2AL	55250	03.10.97	23.10.00	
CS10	Retail Warehouse and Premises	Unit 4b Parc Tawe North	SA1 2AL	56000	23.04.99	15.06.98	
CS10	Retail Warehouse and Premises	Unit 5 Parc Tawe North	SA1 2AL	81500	03.10.97	27.10.99	
CS10	Retail Warehouse and Premises	Unit 6 Parc Tawe North	SA1 2AL	74500	03.10.97	20.03.01	
CS10	Retail Warehouse and Premises	Unit 7 Parc Tawe North	SA1 2AL	115000	03.10.97	27.10.99	
CS10	Retail Warehouse and Premises	Focus Unit 2 Bran Close Llansamlet	SA7 9DE	159000	01.04.95	30.06.97	
CS10	Retail Warehouse and Premises	First Choice Bran Close Llansamlet	SA7 9DE	49000	-	-	
CS7	Showroom and Premises	Dolland and Aitchinson Camarthen Rd Cwmbrwla	SA5 8NJ	27250	01.04.95	19.10.98	
CS10	Retail Warehouse and Premises	Tiles 'R' Us Camarthen Rd Cwmbrwla	SA5 8LB	38000	26.06.98	27.07.98	
CS10	Retail Warehouse and Premises	B&Q Camarthen Road Cwmdu	SA5 8LL	200000	01.04.95	08.12.95	

Figure 3.2: **An example of a business rates list**

The *code* (column 2) is used for statistical purposes. It is given to classify groups of occupancy types in a standardized method for ease of analysis. For example, retail warehouses and their premises are classified in this sense as CS10. For further identification where required, the expression *'description'* (column 3) describes the type of property, and can be used in conjunction with the address to help identify the property concerned, along with its business function. The majority of the descriptions are standard phrases. However, where the property does not match a standard description, a non-standard description tailored to the property is utilised. In this case, the property is still specified a standard code. Where the description states 'and premises', it incorporates everything within the exterior boundary of the premise. Where business rates are concerned, everything within this boundary with a commercial value is professionally assessed and is charged a business rate value.

The address and postcode sections (columns 3 and 4, respectively) are particularly useful for this study as they provide distinct geographical information which can be used within a GIS. The availability of postcodes in this case is especially important, as digital datasets provided by the local authority are based principally on postcode boundary data.

Column 5 presents a Rateable Value figure (*£RV*). This figure results from decisions made by the VOA two years prior to the rating list being published.

The figure is based on the annual rent which the Valuation Office believes would be agreed on the open market at the valuation date, and does not, therefore, act as the annual rates bill for the premise occupier. Similarly, *£GT* is the gross taxable amount payable on rateable values as required by the VOA and central government.

The 'effective date' is the date at which the premise became liable for rates billing. This is applicable if the premise is a new structure, or has recently been altered for commercial use. The list alteration date is the date at which the rating list was altered or updated on the VOA's central database to include the entry or to reflect the change involved. This will not necessarily match the date that the entry first appeared on a schedule of alterations, or the date that it was first reflected in online articles/charts. If the entry is an original 'compiled list' entry, it is not an 'alteration' and therefore no date will be displayed. The change is monitored by a VOA assessment team, who use uniform methods for recording change. A premise on the list may be altered for a number of reasons; for example, a building extension, a change in occupancy or business type/class etc. In assessment, the change is recorded in the same way that the valuation office records data for business rates – a new assessment is carried out and the owner/occupier pays the new rate. If there is a change, then the old features are discarded and the new attributes are recorded in the most up to date or the forthcoming data set. Any previous features may still be seen in previous datasets.

The final section, column 7 uses a code to indicate that the rating assessment has changed as a result of a proposal (appeal) made by an interested party, (the property occupier, owner, or ratepayer for example), or the billing authority.

3.4 | **Quantitative research methods**

In an attempt at understanding the geographical shifts of retail activity throughout the Swansea urban district, any changes in intra-urban retail land use between 1990 and 2000 were recorded, monitored and presented visually

through digitally produced thematic maps. This enabled the examination of changing location patterns and the extent to which decentralisation, dispersal and agglomeration of retail practice are occurring within the urban district. Adding to this, spatial information regarding commercial rateable values was incorporated to develop an understanding of why retail activity is relocating geographically. The maps will be produced using the Microsoft Windows based MapInfo version 7.5 software package. Finally, an assessment of the usefulness of GIS in understanding retail location analyses and patterns of intra-urban commercial activity will be considered.

In order to visually represent geographical information in a two-dimensional manner, various data must be incorporated and collaborated together. The chief datasets used in this research are a mixture of shapefiles (in **.shp formats*) and electronic worksheets known as databases (in **.xls/*.tab/*.dbf formats*). Shapefiles are a simple, non-topological vector-based image format for storing geometric location and attribute information of geographical features in digital form (ESRI, 1994). The Attribute information supplied with the shapefiles forms a critical part of an operational GIS. Supplied in tabular (*.tab/*.dbf) form, a database is an integrated set of data on a particular, usually geographically referenced subject (Longley *et al.*, 2001).

In order to correlate the business rates list with the electronic spatial data, the rating lists must be duplicated into this electronic database format, compatible with the spatial boundary data. Owing to copyright restrictions and for purposes of data protection, the business rates lists are only available in hard copy form from local authorities. It is therefore essential to replicate the documents as accurately as possible, in order to avoid problems at a later stage of examination. When reproducing the rating lists, the data will be copied into Microsoft Access, due to the compatibility of its files within the GIS package, MapInfo.

When reproducing the business rates data, four of the seven columns in each rating list were used; the code and description, the address, postcode and the rateable value. These four columns provide all of the necessary data whilst maximising time efficiency and minimising inaccuracies in data. Reproductions of the lists were carried out for the two study years, 1990 and 2000. Further advantages of electronic data arise in the examination of the data, where the two years may be compared and analysed against each other, especially as the spatial element of these data will remain constant throughout the two study years.

Using existing GIS, an integrated spatial information system of the two databases can be developed. The postcode column of the rating lists acts as a georeferenced 'tag' or seed point which enables the data to be inserted accurately into a geographically coordinated image (shapefile) by process of geocoding the two datasets for visual representation purposes. The collaboration of the two datasets with this new georeference will allow the creation of various maps with differing thematic content. The shapefiles in this sense are vector polygon images of postcode sectors (see figure 3.3).

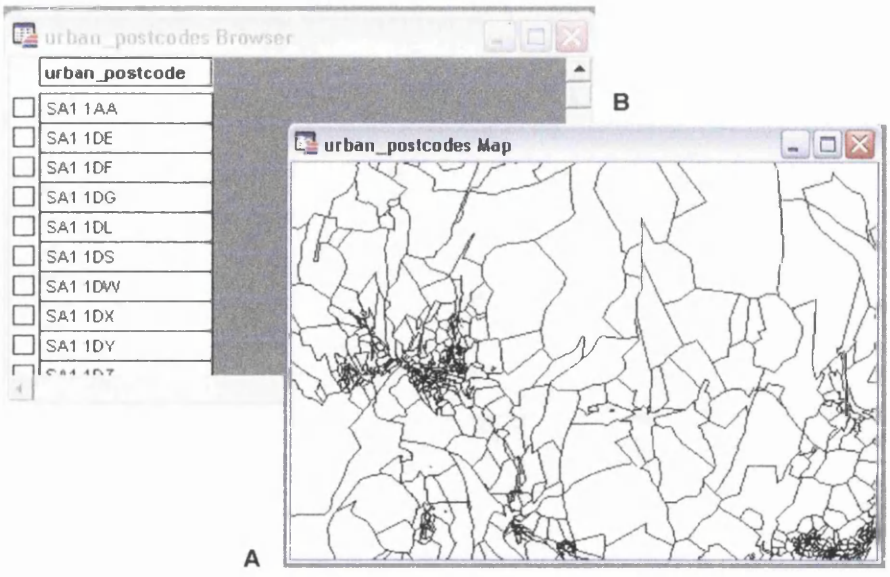


Figure 3.3: **A) the postcode sector shapefile and B) the accompanying attribute table**

Visualisation problems may arise when presenting geographical information at relatively small scales, such as by postcode sector. Noting this, it is impossible to illustrate every premise in urban Swansea on a single map, without some form of generalisation. Therefore, commercial activity will be generalised to fit within a number of set parameters. Every commercial retail premise within the study area will be characterized by commercial category, which will allow the clear visual representation of commercial activity whilst retaining a high degree of both accuracy and legibility. The categories used are those used in the official business rates documentation. Six major categories were used, which are made up of a number of sub classes (see figure 3.4 for a definition of each category).

Further generalisation was carried out by grouping each commercial category into their relative postcode sector. Every postcode sector in each of the six study districts therefore has a count of each commercial category for the two studied years. The difference in the total number of commercial categories by sector between 1990 and 2000 was then recorded, and any net change may be mapped thematically within a GIS.

Once this generalisation is complete, the changes were mapped by each of the six commercial categories, by postcode district. This allows for clear visualisation, whilst still providing a comprehensive analysis of the patterns of change through time. Similarly, the total change in all categories was mapped by postcode district, allowing an insight into those areas of the study area which are exhibiting either a growth or decline in the total number of commercial premises. Changes in rateable value were recorded and examined using similar methods to those used for mapping changes in the number of commercial premises. Again, changes will be displayed as net change between the two study years.

When presenting the maps, various factors were added or removed to add clarity and a sense of geographical space. The borders surrounding each

Figure 3.4: **Retail Categories, their definitions and sub-classes**[2]

Term	Definition	Includes
Shop and Premises	A mercantile establishment usually based in 'off-street' premises for the retail sale of goods or services to the public.	Shop, kiosk, Estate Agent, Post Office, Betting Shop, All premises with the code 'CS'
Banks and Financial Outlets	Commercial establishments licensed as a taker of deposits, mainly concerned with the financial interest of individual, private customers.	Banks, Building Societies, All premises with the code 'CS1'
Licensed and Entertainment Premises	Licensed establishments usually based in 'off-street' premises. They may include public houses, wine bars, nightclubs, restaurants/food courts and similar establishments licensed to serve alcohol and to serve food. Entertainment premises are usually designed with the sole function of public entertainment and/or leisure purposes. Bingo halls, cinemas, theatres, bowling alleys, and other premises which provide similar entertainment functions to the public are included in this category.	Public Houses, Wine Bars, Restaurants, Nightclubs, Bingo Halls, Cinemas, Theatres, Bowling Alleys.
Large Foodstores and Premises	Single level, self service stores selling mainly food, or food and non-food goods, usually with more than 2500 square metres trading floorspace, with supported car parking facilities.	Hypermarkets, Superstores, Large Foodstores, all premises with the code 'CS9'
Retail Warehouses and Premises	Large, single level stores specialising in the sale of household goods (such as carpets, furniture, and electrical goods) and bulky DIY items, catering mainly for car-borne customers and often situated in out-of-town locations. The principle use is the sale of products displayed and stored in one and the same area, and where such products do not include food products as the principle use.	All Premises with the Code 'CS10'
Showrooms and Premises	A large, single level establishment where merchandise (such as cars) can be displayed for retail purposes. Retail activity may be contained internally or externally depending on the size and type of product.	Car Showrooms, Showrooms, All premises with the code 'CS7'

[2] Source of definitions:
http://www.odpm.gov.uk/stellent/groups/odpm_control/documents/contentservertemplate/odpm_index.hcst?n=7159&l=2

postcode sector were removed, leaving just the coloured sector polygon, as they may interfere with the clarity of the map. Points of major relevant geographical reference, such as district centres, other hierarchical centres, retail parks and major roads are included to provide a clear sense of geographical reality. Although the postcode sectors extend to the mean high tide level, this boundary will not be included in the maps due to the possibility of it obstructing essential information[3]. Scale bars, north arrows, legends and titles will be added to all maps.

3.5 | **Qualitative Data**

Once the key patterns of retail change between 1990 and 2000 are established and related to the other datasets, the final two stages of the research will involve a search of planning documentation and interviews with various key informants.

Interviews were undertaken with key informants situated in various related fields encompassing retail activity in urban Swansea in order to develop an explanation of spatial retail trends. Interviews in this sense are employed as an extra 'tool' for use within the multi-method approach used in this research. The interviews were carried out with academics specialising in retail change, research officers who use GIS and might benefit from this research technique, and senior local authority planners.

Discussions with these informants were semi-structured. A number of set questions encompassing a number of topic areas were prepared before the interviews were carried out, in order to confer rough parameters within each interview. However, the discussions took a conversational, fluid form with each interview varying according to the views and experiences of the respondent (Valentine, 1997). This allows a much more in depth discussion and enables the interviewee to construct their own account of their understandings and

[3] For clarification of those postcode boundaries which extend to the mean high tide level, refer back to figure 1.2

experiences. To insure the accuracy of the information received, the discussions were recorded.

Further explanation of changing retail activity is provided by evidence available in planning documentation. Planning policies and legislation may suggest explanations for the changing locations of retail activity. Such records include Unitary Development Plans (UDP's), Planning Policy Guidance Notes (PPG's), and National Planning Policy documents are available from the City and County of Swansea, Central Government, and the Welsh Assembly Government.

These documents were carefully examined for any relevant information which relates directly to commercial planning policies, at both national and local levels. Any information which relates to the policies, guidelines, procedures and strategies which may affect the location and patterns of commercial activity in the Swansea study area were referred to.

3.6 | Chapter Summary

This chapter has presented and discussed the methods used to carry out this research. Beginning with an explanation of data sources, the chapter goes on to explain the significance of the information contained in the business rates lists and explains the contents of these documents. Quantitative research methods were then discussed, focussing on the collaboration of the two business rates lists together along with the methods of linking these files the to electronic boundary data. Following this, qualitative methods were introduced, describing how interviews and thorough documentary examinations may help verify and clarify and spatial changes recorded from quantitative evidence.

4 | Using Rates Data to Identify Patterns of Retail Change

4.0 | Retail Space in Swansea; an Overview

Since the mid-1960s, various factors have instigated new patterns of shopping behaviour. Patterns of suburbanisation, counter-urbanisation, increasing affluence, rising levels of car ownership and increased female participation in formal employment combined with the demands of consumers for an increasingly specialised and sophisticated range of goods and services, along with the associated changes in the economic organisation of the retail industry, have all led to a geographical transformation in the character of the urban retail system (Bromley and Thomas, 1993). The Swansea urban district is typical of these trends. Prior to 1978, the system of shopping centres in Swansea conformed to the conventional patterns replicated in many British cities of equivalent size (Thomas and Bromley, 1987). However, the movement of many stores to out-of-town locations during the last two decades has left a pattern of free-standing superstores and retail warehouses superimposed on a traditional hierarchical structure which includes the main town centre, subsidiary district centres and a number of neighbourhood centres (Bromley and Thomas, 1989b; Thomas and Bromley, 1987).

The following chapter examines the patterns of retail change throughout the Swansea urban district using business rates data input to a GIS. Incorporating a combination of thematic maps and annotation, any patterns of change over time are examined, illustrated and described. For the purposes of presentation and clarity, the analysis is split into sections of commercial change by category. The chapter begins by analysing patterns of change in the number and location of shops around the study area, and moves through each of the commercial categories defined for business rates purposes (large foodstores, retail warehouses, showrooms, licensed and entertainment premises, banks and financial outlets respectively; see appendix A1 for definitions) describing the changes by postcode district. Any changes will visually represented using thematic maps drawn in MapInfo GIS. Any changes are all displayed as net changes. Once all of the categories have been described in detail, the chapter progresses to analyse the changes in the total number of commercial outlets, analysing the patterns initially on a large scale basis by postcode district to get

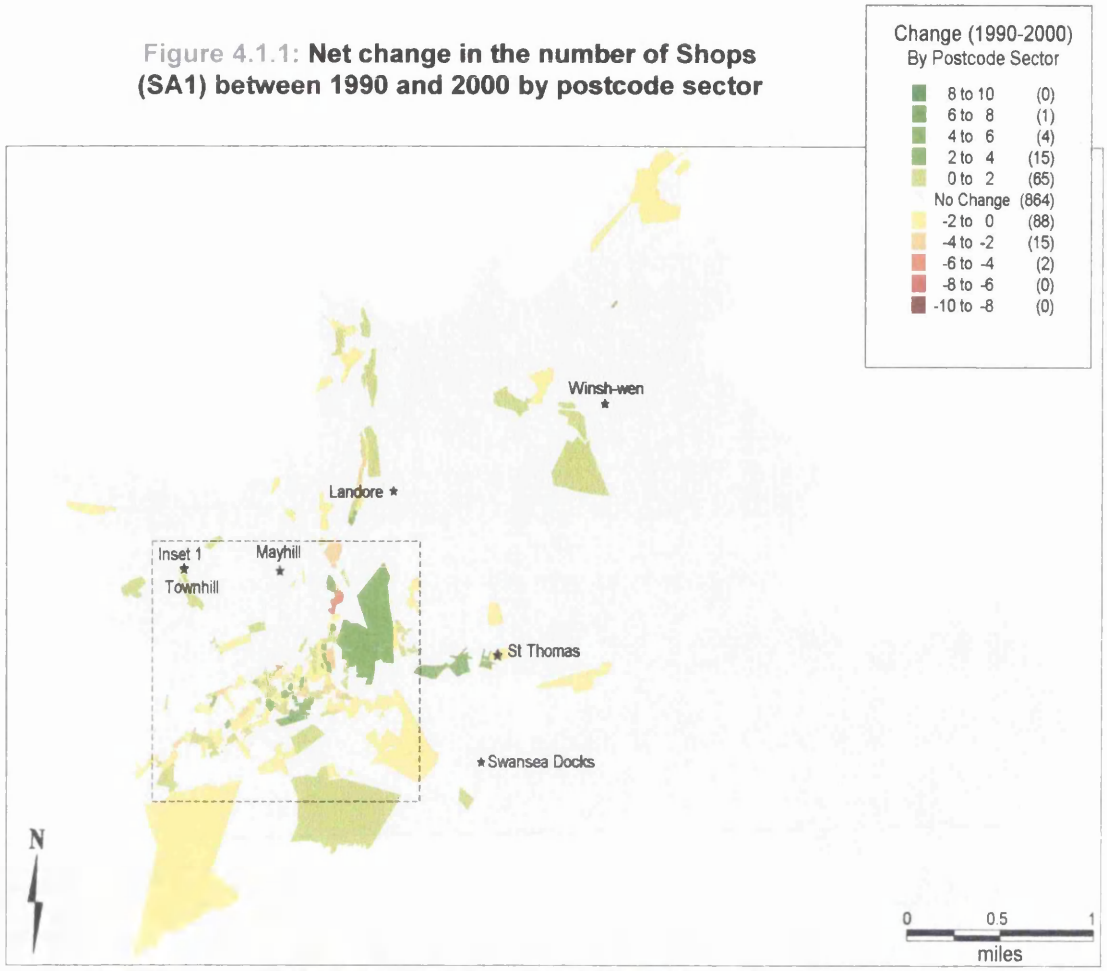
an overview of the general patterns of change, and then on a smaller scale, by postcode sector in order to establish which of the regions or individual areas has exhibited commercial growth or decline. The chapter also examines the patterns of change in total rateable value by postcode sector. Finally, a chapter summary is provided.

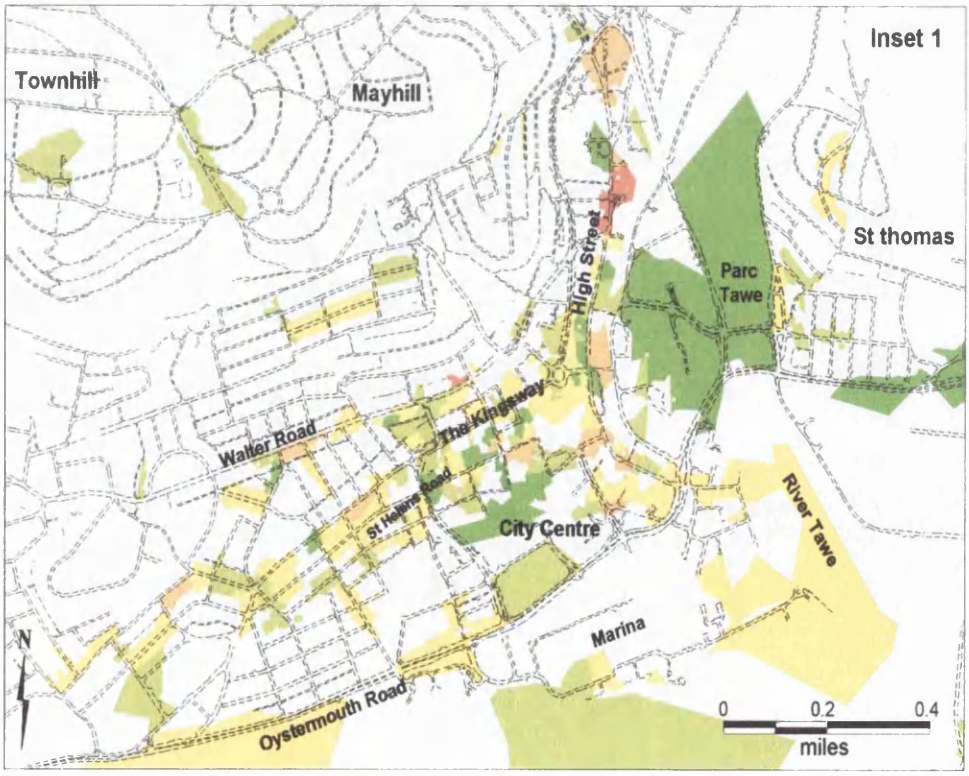
4.1 | Shops and premises

The number and spatial location of shops and premises in Central Swansea (SA1) has seen the most considerable changes of all the commercial outlet categories studied (Figure 4.1.1). For the purpose of this study, shops and premises are defined as those premises which provide off-street goods and services to the public, with a total commercial floorspace of no more than one thousand square meters (see also appendix A1). Swansea city centre has witnessed the majority of these changes (see inset). The most significant net losses are towards the north of High Street, and to the north of the Kingsway, both postcode sectors losing between four and six shops. The sector to the east of the marina has lost up to two shops in a relatively large postcode sector. Similarly, Oystermouth Road has lost this number, perhaps due to its distance from the city centre. Losses are also evident in a linear pattern along Wind Street between the city centre and Parc Tawe. Three postcode sectors have lost up to four shops along this road. Other losses are evident to the west of the city centre, along Walter Road and St Helens Road.

Increases in the number of shops are largely concentrated in the city centre, Parc Tawe and parts of High Street, with the majority of postcode sectors in these areas showing a net gain of between two and four shops over the ten year period. Small net increases (0-2 shops) are also visible around Townhill and Mayhill, towards the south of the marina, in the north in the Landore region of SA1, and at Winsh-Wen.

Figure 4.1.1: **Net change in the number of Shops (SA1) between 1990 and 2000 by postcode sector**





Changes in the SA2 district, the western suburbs of Swansea (Figure 4.1.2), have been predominantly negative. The linear settlement at Killay has seen the most dramatic losses, losing up to six shops in one postcode sector. The east of SA2 has seen losses, most notably in Sketty, Uplands and the Brynmill areas. There are large areas of losses towards the south of Upper Killay and to the east of Dunvant. The losses south of Killay are in an area just north of the Mumbles suburban centre, which may have been a major contributing factor for their closures of shops in this area.

Spatial increases in the number of shops are less pronounced and widely spread in this district. The most considerable gains are at Killay, gaining between two and four shops, and at the east of the Uplands and Brynmill, also gaining between two and four shops. Whilst the majority of losses are evident on the east of SA2, where losses do occur, there is a pattern of growth in close geographical proximity. This pattern is visible in Brynmill, Sketty and also more westerly, at Upper Killay.

Changes in the number of shops and premises in SA4, the largest of the six districts and located towards the north-west of central Swansea, can be seen in Figure 4.1.3. Focused predominantly around the suburban centres which are situated within it, there are both negative and positive net changes throughout the district. Those suburban centres within SA4 which have experienced the greatest change are Gorseinon and Pontarddulais, both relatively large district centres, Gowerton, a smaller neighbourhood centre and Hendy, a much smaller settlement towards the north of the district. Of these, Gorseinon has observed the most varied changes. Five postcode sectors around the centre of the town have lost up to two shops, one has lost between two and four, and one has lost between four and six. In contrast, the area has gained up to two shops in five adjacent postcode sectors, two to four in two nearby sectors, and between eight and ten shops in a central postcode sector.

Pontarddulais itself has seen a general rise in the number of shops. One of its surrounding postcode sectors has seen a rise of up to two shops, and two

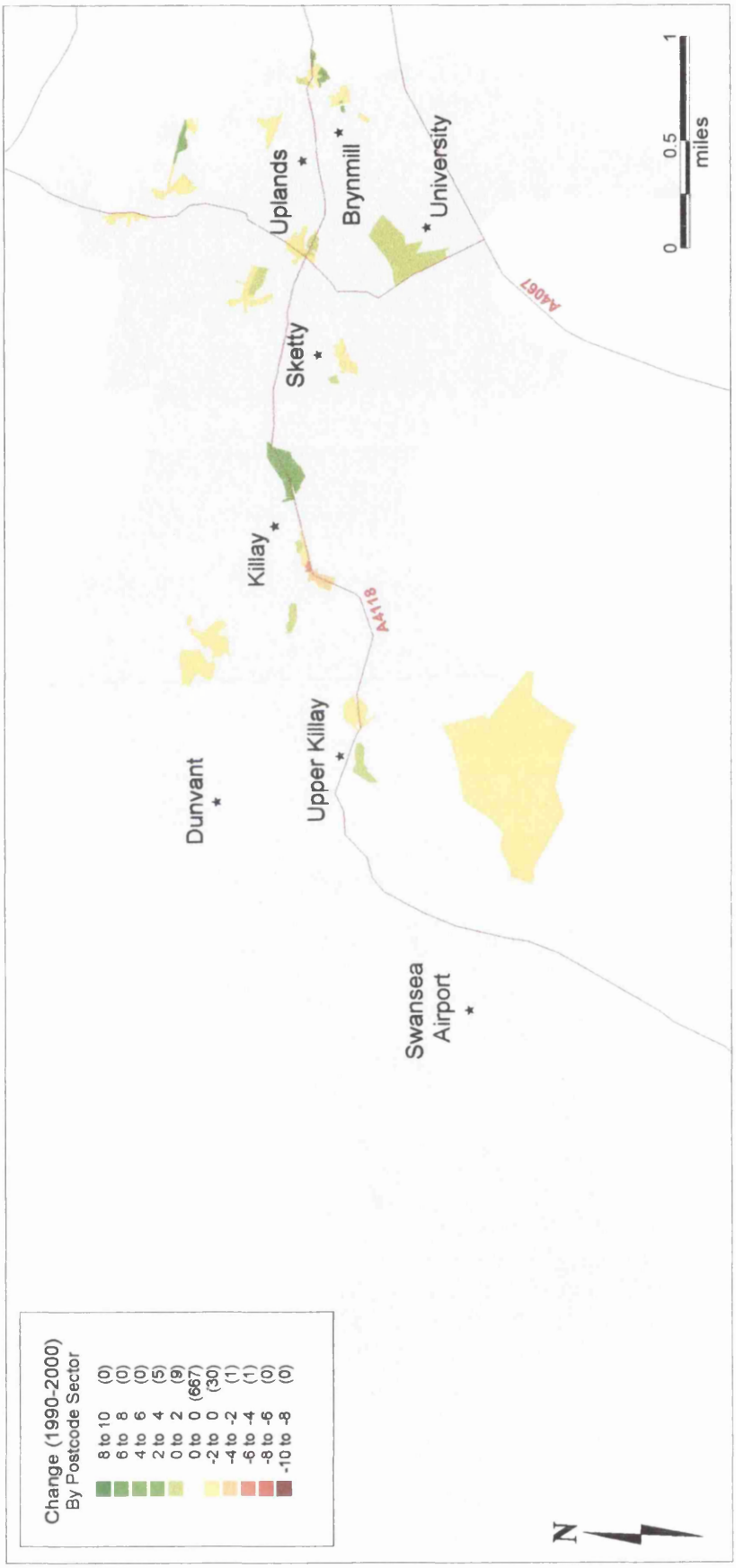


Figure 4.1.2: **Net change in the number of shops (SA2) between 1990 and 2000 by postcode**

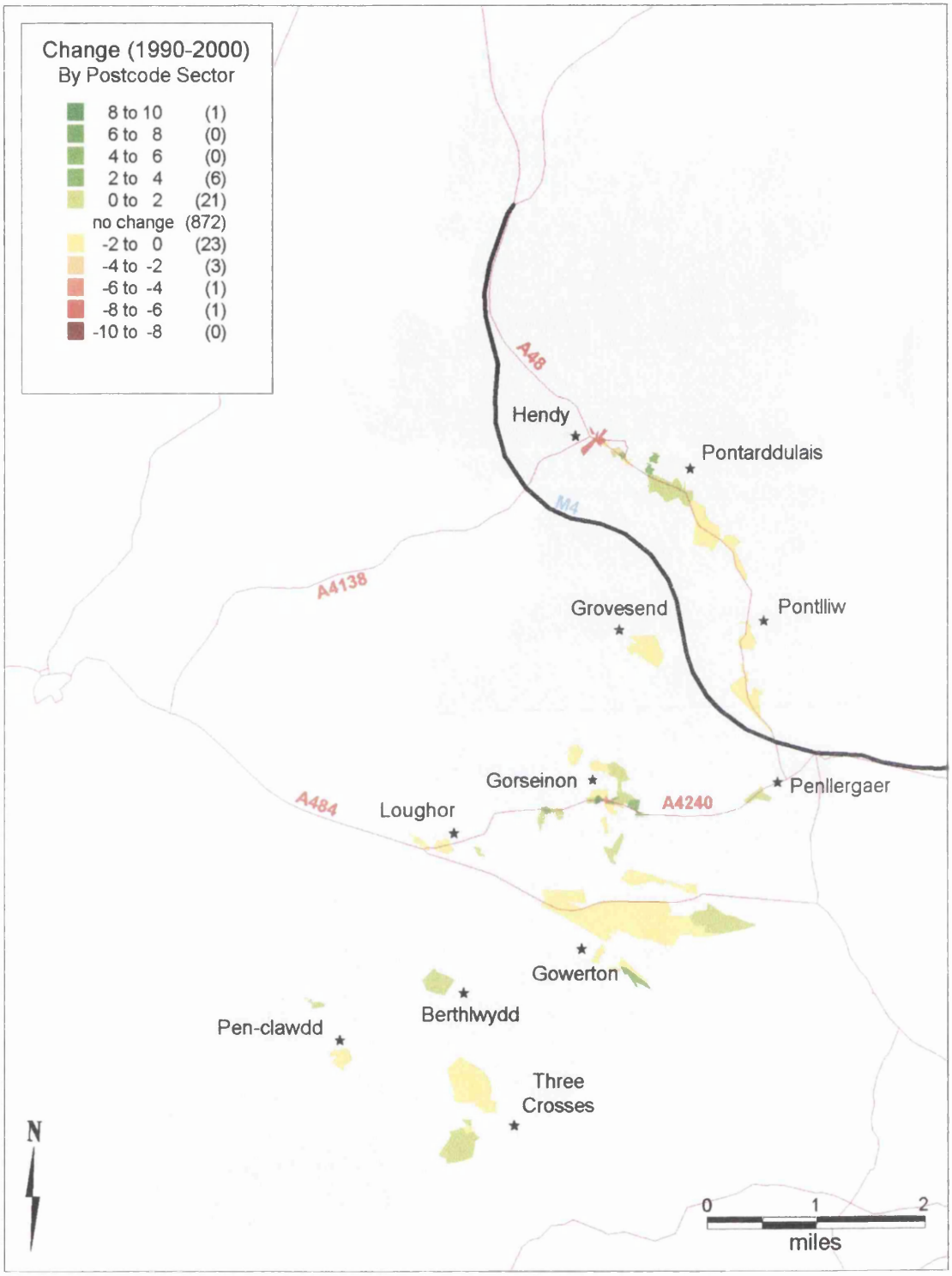


Figure 4.1.3: **Net change in the number of shops (SA4) between 1990 and 2000 by postcode sector**

have seen an increase in the number of shops of between two and four. In contrast, the smaller settlement of Hendy has witnessed a general drop in the number of shops, with one postcode district losing as many as eight shops.

Losses are also visible at Grovesend, Pontlliw, Loughor, Gowerton, Pen-clawdd and to the north of Three Crosses.

The majority of net changes in the number of shops have taken place in the south of the SA5 postcode district (Figure 4.1.4), immediately north of the central Swansea area, with the exception of Felindre in the north which has observed a rise of up to two shops.

Net changes in the south of SA5 are focused along the major roads of Fforestfach, Cwmdu, Gendros and Manselton. The main arterial route through Manselton, the B4489, has experienced a general increase in the number of shops, whilst the neighbouring areas just off the same road have observed a decrease in the number of shops. Change in Cwmdu has also been focused on the main transport routes running through it.

There has been a general increase in the number of shops within the Fforestfach Retail Park, straddling the busy Pontarddulais Road. This retail park is the result of unplanned, incremental development since 1981 (Bromley and Thomas, 1989b). Many of the postcode sectors within the area have seen a rise of up to two shops. However, change in Cadle, located just north of the industrial estate has been negative, where a loss of between four and six shops is evident. Other areas in the south of SA5 have experienced a general decline in the number of shops. Although Tirdeunaw has observed increases in some sectors, the general pattern of change has been negative, with losses of up to four shops visible in some postcode sectors.

Patterns of change in the SA6 postcode district, located north east of central Swansea, vary considerably throughout the district (Figure 4.1.5). Clydach, a district centre, exhibits varied changes of growth and decline. Whilst three postcode sectors in Clydach show evidence of increases of up to eight shops, losses of equal quantity are visible, with spatially widespread losses of up to two shops evident throughout the suburban centre. Further north at Craig-cefn-parc, there is a general pattern of decline, with one area losing up to eight shops, and a neighbouring, larger area losing up to two. A smaller area to the north

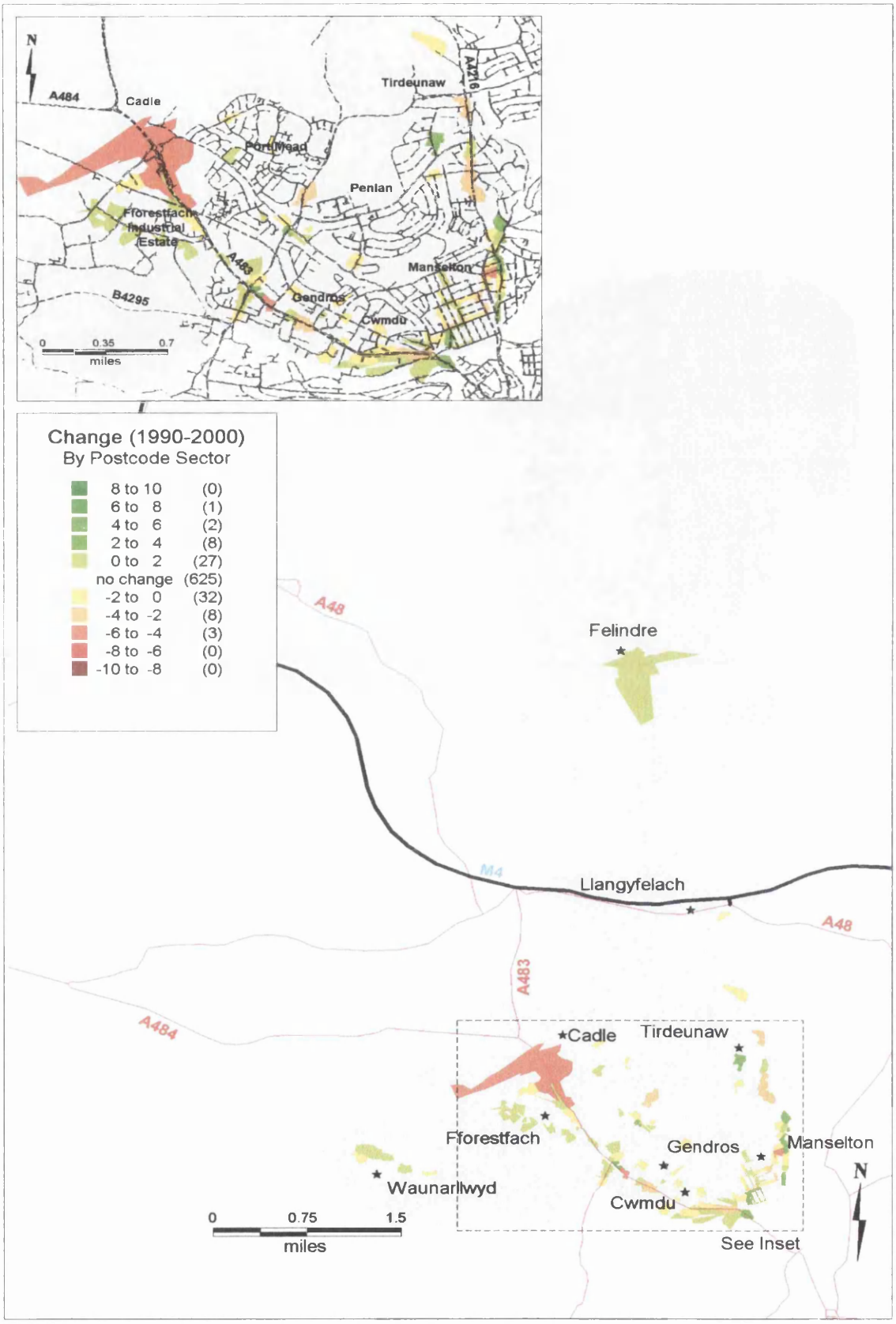


Figure 4.1.4: **Net change in the number of shops (SA5) between 1990 and 2000 by postcode sector**

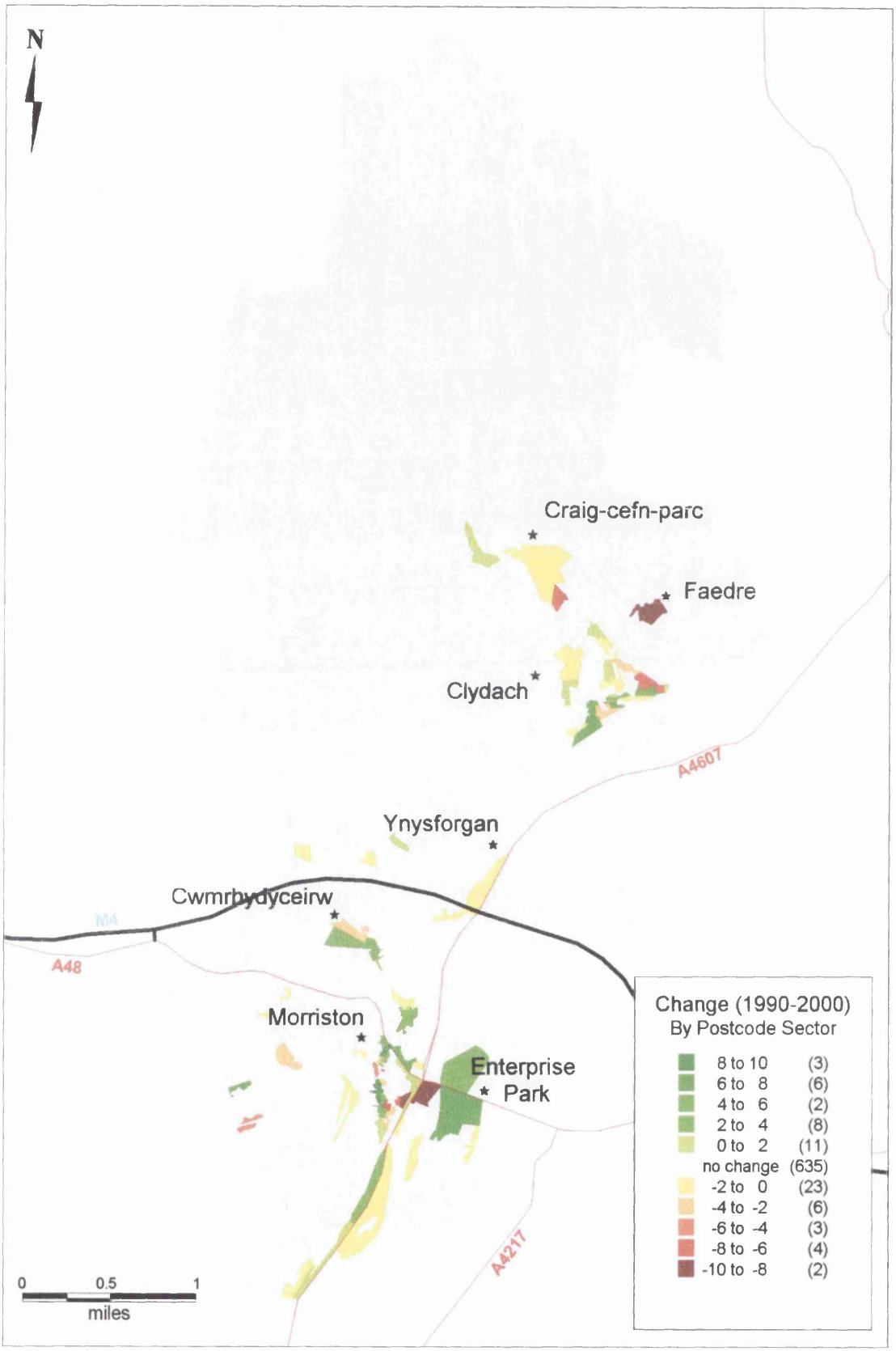


Figure 4.1.5: **Net change in the number of shops (SA6) between 1990 and 2000 by postcode sector**

of this decline has revealed a net increase in the number of shops, but only of two. Similarly, Faedre has witnessed a decline, losing up to ten shops in a single, central postcode sector, along with Ynysforgan which has lost a net total of up to two shops over the ten year study period.

The sectors surrounding the Swansea Enterprise Park and neighbouring Morriston, roughly three miles north of the city centre, have observed considerable change. The Enterprise Park occupies a large, once derelict site close to the M4 (Bromley and Thomas, 1989b), intersected by the Swansea Vale railway and encircled by the busy A4067 and A4217 roads. Two large sectors in the Enterprise Park show evidence of a general increase in the number of shops, whilst patterns of change in adjacent Morriston are more varied. Morriston is the largest town centre outside of the city centre within the study area. One large sector in Morriston has lost between eight and ten shops, with other, smaller postcode sectors losing between two and eight premises. However, whilst evidence of decline is clear in some sectors, many neighbouring areas are demonstrating increases in the number of shops. Visible in this area are increases of between two and ten shops, in various postcode sectors around Morriston.

Towards the south of SA6, a linear pattern of change is evident along the B4603 road, which runs parallel to the major A4067 road. Along the road, there have been increases of up to six shops. Further away from the road, however, decreases in the numbers of shops are evident, with two sectors losing up to two shops each. Similar patterns are visible in SA1, at Landore, and in SA5 between Manselton and Tirdeunaw.

Comparable to SA6, SA7 on the eastern boundary of the study area has also demonstrated spatially varied patterns of increase and decrease (figure 4.1.6). The section of the Swansea Enterprise Park which is located in the south-western corner of the SA7 district shows a general net increase in the number of shops, although there are minor decreases in some sectors. Llansamlet, immediately north of the Enterprise Park, has witnessed decreases of between two and four shops. The region lying east of the

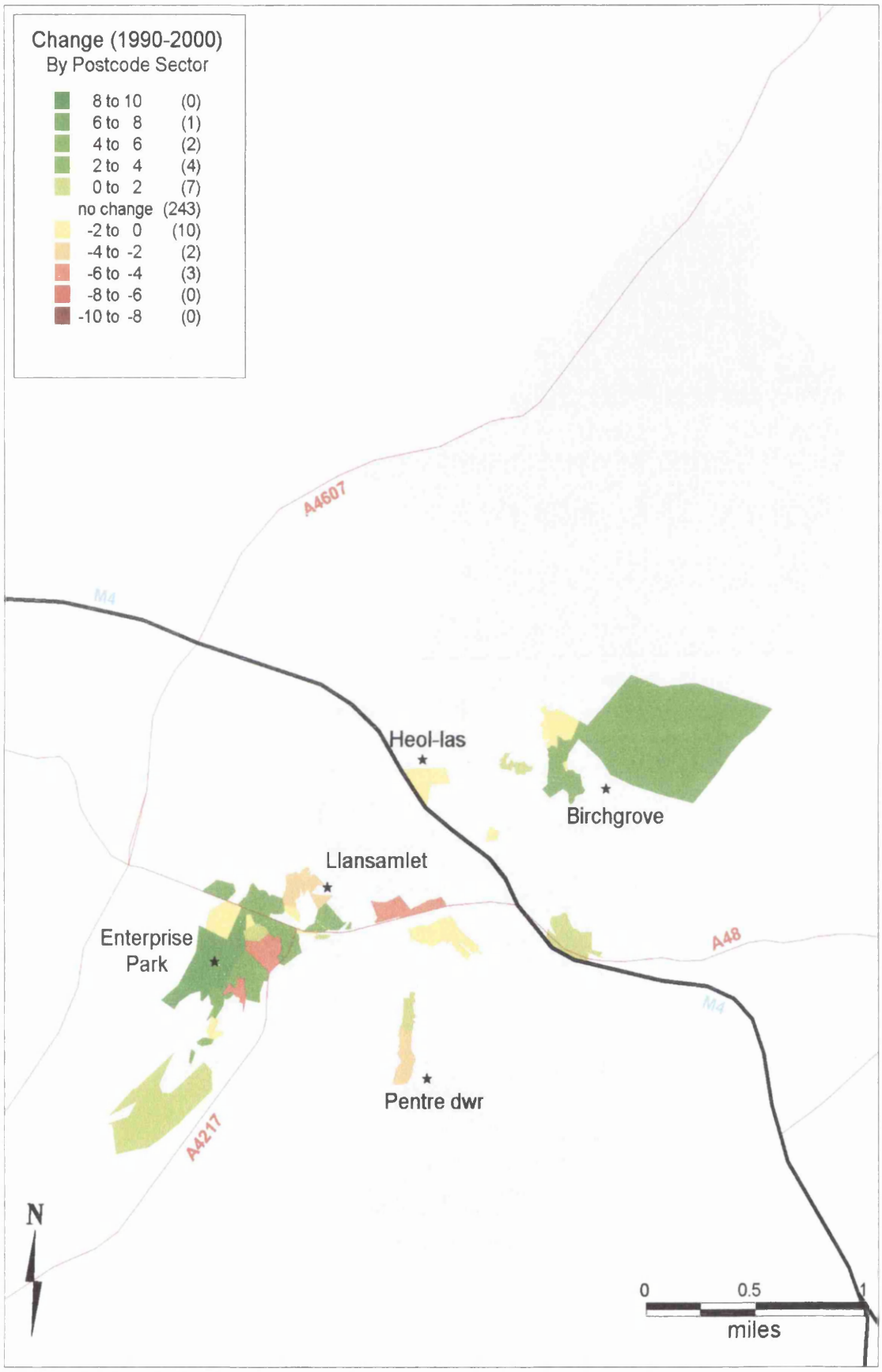


Figure4.1.6: **Net change in the number of shops (SA7) between 1990 and 2000 by postcode sector**

Enterprise Park has also experienced losses in the number of shops and premises, with one postcode sector losing up to two shops, and another losing between four and six. A significant area at Birchgrove has gained between two and four shops, whilst Heol-las has lost up to two shops.

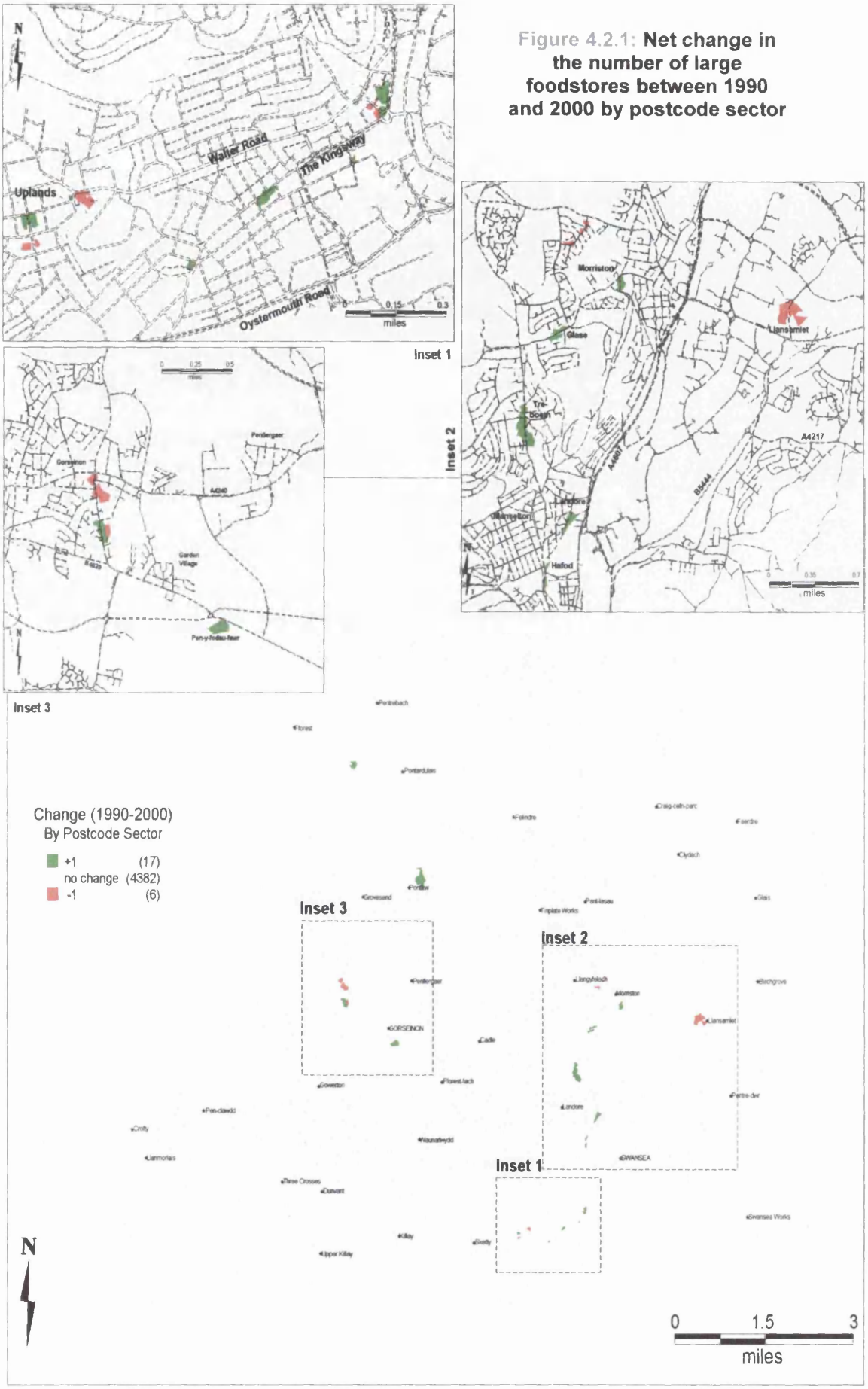
The majority of changes in the number and spatial distribution of shops and premises is predominantly focused around key centres in the study area. Within these centres, it is apparent that central sectors exhibit more positive increases than those postcode sectors towards the edges of such centres. This is especially apparent in the city centre (SA1), at Gorseinon and Pontarddulais in SA4, and at Clydach and Morriston in SA6. Extending from this, it is clear that new developments such as Parc Tawe and the Fforestfach Retail Park have attracted new shops, to the disadvantage of the surrounding areas. Third order hierarchical centres exhibit general patterns of decline in the number of shops, noting the neighbourhood centres of Gowerton and Manselton in particular.

4.2 | Large Foodstores

It is generally accepted that the scale and quality of large foodstores situated in or around traditional centres is critical to their successful functioning, as they generate large numbers of shoppers, many of whom will frequent other nearby stores (Thomas and Bromley, 2003). The shifting of these foodstores to out-of-centre locations may have detrimental impacts on such traditional centres.

Figure 4.2.1 demonstrates the changing spatial distribution of the number of large foodstores within the ten year study period. Defined as single level, self service stores selling mainly food, or food and non-food goods, usually with more than 2500 square metres trading floorspace, with supported car parking facilities (see appendix A1 for further definition), there has been a net increase of seventeen stores and a loss of only six within the study area. Various trends are visible from the thematic maps shown. It is clear that large foodstores are increasingly favouring the accessible locations close to major roads and

Figure 4.2.1: **Net change in the number of large foodstores between 1990 and 2000 by postcode sector**



within a large customer base. This is especially evident at Pan-y-fodau-fawr (inset 3), and at Landore, Hafod, Tre-boeth, Glase and Morriston (inset 2), where new shops are situated in residential areas, and close to major routeways. All of these areas are north of the city centre. The loss of a large foodstore at Llansamlet may be related to increased competition from the new stores situated towards the west of inset 2.

There has been a considerable net increase in the number of large foodstores in the centre (inset 1) between 1990 and 2000. High Street, the Uplands, and St Helens Road have all gained new stores, whilst the Uplands and the southern end of High Street have lost stores. New stores have also appeared at Pontlliw and to the west of Pontarddulais at Hendy.

4.3 | **Retail Warehouses**

The change in the number and spatial distribution of retail warehouses throughout the study area is shown in Figure 4.3.1. Retail warehouses are defined in this case as large, single level stores specialising in the sale of household goods (such as carpets, furniture, and electrical goods) and bulky DIY items, catering mainly for car-borne customers and often situated in out-of-town locations (see also appendix A1).

Similar to the geographical trends of new large foodstores, the location of new retail warehouses appears to follow major traffic routeways. The increase in the number of retail warehouses far outweighs the decreases, with twenty-eight postcode sectors showing a net gain of at least one retail warehouse, and eighteen losing at least one outlet.

The patterns of geographical location are clearly visible in both inset diagrams. Many ribbon-like postcode sectors bordering major roads have gained retail warehouse outlets. These trends are most visible at Tre-boeth, Manselton, Mayhill and along the A4607 south of Landore. Inset 2 shows similar patterns at Garden Village and Gowerton. Trafle and Penllergaer have

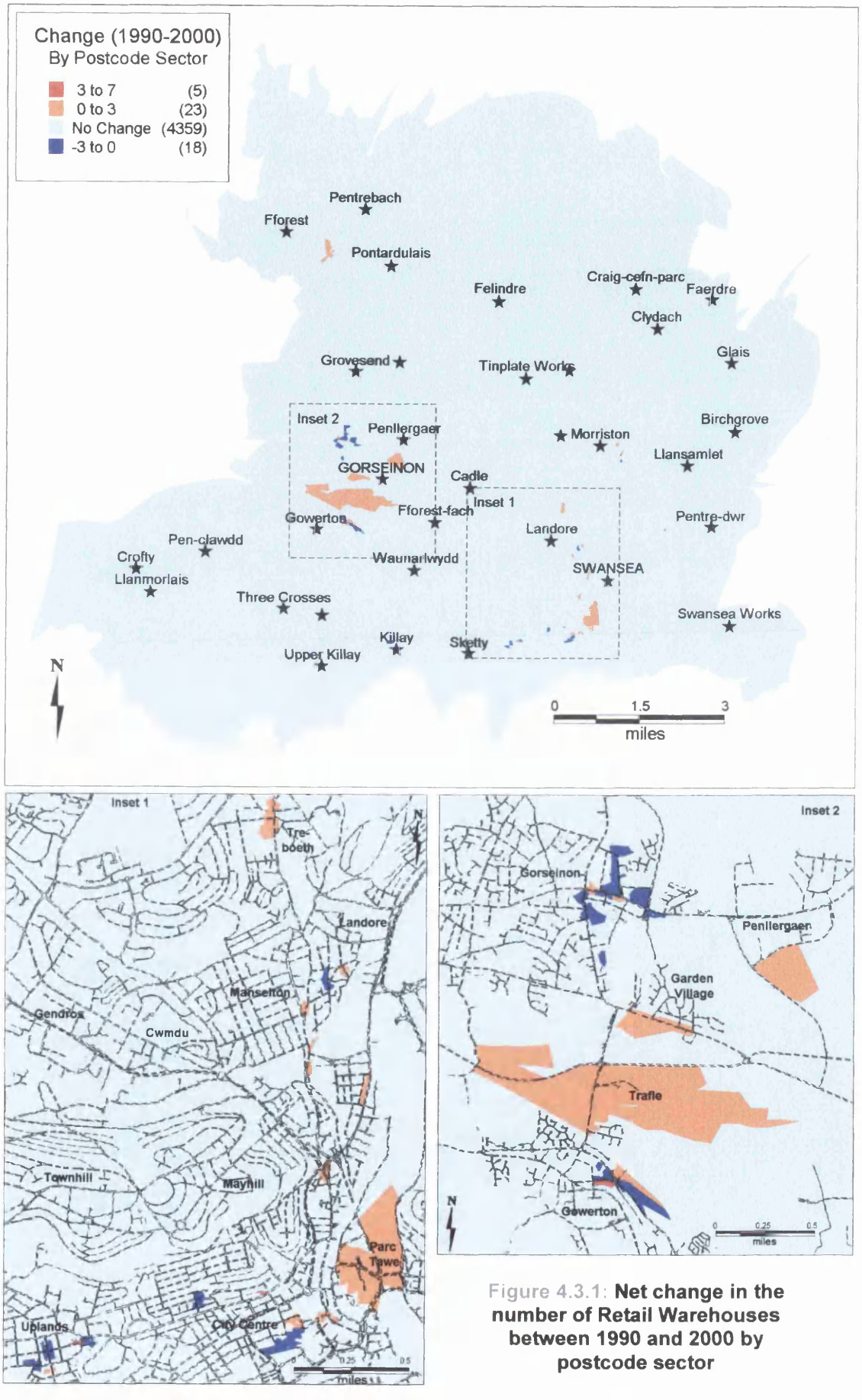


Figure 4.3.1: **Net change in the number of Retail Warehouses between 1990 and 2000 by postcode sector**

experienced growth adjacent to major road junctions, possibly within purpose-built retail parks.

The predominant increases in the number of retail warehouses are at Parc Tawe, an off-centre retail park adjacent to the city centre, and around Gorseinon, at Trafle, Gowerton, Garden Village and Penllergaer. A large sector at Gowerton exhibits net losses of up to three retail warehouses. However, two neighbouring sectors have both gained, one by up to three outlets, and another between three and seven. In contrast, although the surrounding areas have all experienced a general increase in the numbers of retail warehouse outlets, Gorseinon itself has seen a general decline in the number of retail warehouses, with as many as six surrounding postcode sectors losing up to three outlets.

4.4 | Showrooms and Premises

A retail showroom is defined as a large, single level establishment where merchandise (such as cars) can be displayed for retail purposes. Retail activity in this sense may be contained internally or externally depending on the size and type of product. Although a total net increase of only three showroom outlets is recorded over the ten year study period in central Swansea (SA1), spatial changes are far more diverse (figure 4.4.1). There are rises of two showrooms visible at Port Tennant, northwards towards Landore and in the city centre.

In the city centre, a postcode sector on Oxford Street and a sector bordering the Kingsway, St Helens Road roundabout have experienced net increases of three showrooms. Further increases are also visible along St Helens Road, Walter Road, north of Wind Street and adjacent to the Kingsway/High Street roundabout. Net losses are visible in similar areas. Along St Helens road, three sectors have lost one outlet, and one has lost two. In the city centre, at the Quadrant Centre, the large indoor shopping centre covering a large postcode sector has lost only one showroom, and along High Street three sectors have lost one showroom outlet.

Figure 4.4.1: **Net change in the total number of showrooms (SA1) between 1990 and 2000 by postcode sector**

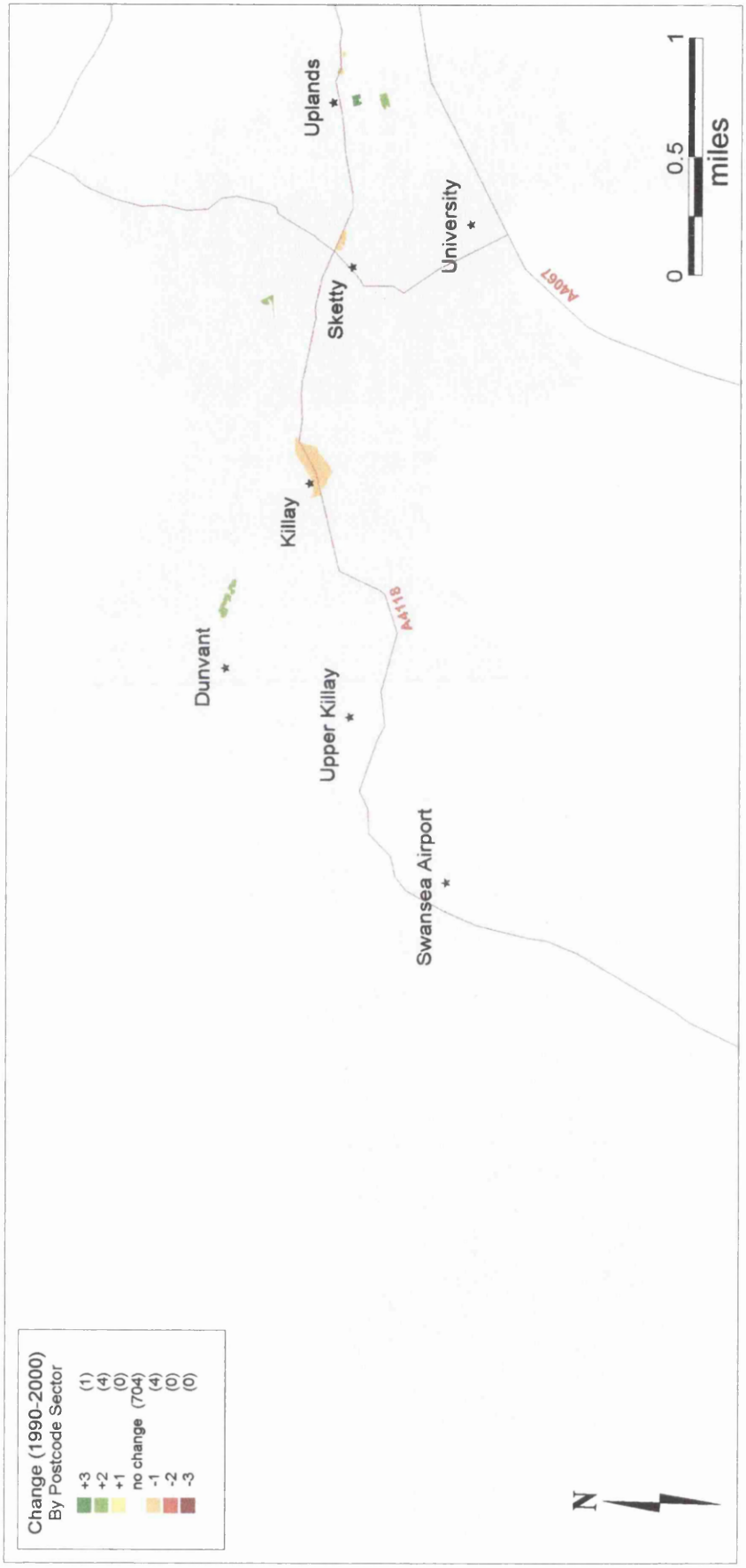


Figure 4.4.2: **Net change in the number of showrooms (SA2) between 1990 and 2000 by postcode sector**

Figure 4.4.2 shows the changes in the number and location of showrooms in western Swansea (SA2) over the ten year period. Net increases in the number of showrooms in this district outweigh the decreases. Patterns of loss are visible at Killay, east of Sketty and east of Uplands. Each of these areas has lost only one showroom outlet. Patterns of growth are visible at Dunvant, north of Sketty and towards the south of Uplands. Of the five sectors which have observed increases, all have experienced growth of two outlets, with the exception of one, directly south of Uplands which has gained three showrooms.

Similarly, patterns of growth outweigh the decreases in the number of showrooms in north-western Swansea, in the SA4 postcode district (Figure 4.4.3). Seven postcode sectors in this district show net gains of two showrooms. These lie at Pen-clawdd, east of Gowerton, Pontarddulais and around the Gorseinon urban centre. Four of these are situated in Gorseinon, which has also experienced an increase of three showrooms in one sector. Although increases are visible around Gorseinon, three adjacent sectors have lost one showroom. Losses of one outlet are also visible west of Pontarddulais and at Penllergaer. From this evidence, it is apparent that showrooms in western Swansea tend to be locating in the traditional centres, with Gorseinon being the strongest preference.

Changes in SA5, north Swansea, are situated towards the south of the postcode district (Figure 4.4.4). Again, net increases outweigh the decreases in the number of showrooms in this district. Net increases are visible around Manselton where two sectors have gained two outlets, at Tirdeunaw, with one sector gaining two outlets and at the Fforestfach Retail Park, where two bordering sectors have gained two showroom outlets. Losses are evident at Waunarlwydd and southeast of Manselton; both of which have lost one outlet.

Patterns of change north-east of central Swansea, in the SA6 postcode district are concentrated in Morriston (Figure 4.4.5). Both net increases and decreases are visible in the area, mainly following Woodfield Street through Morriston centre. A large sector north of Woodfield Street, close to the A48 has gained two showroom outlets. Further south along this road, two sectors have experienced an increase of up to three outlets.

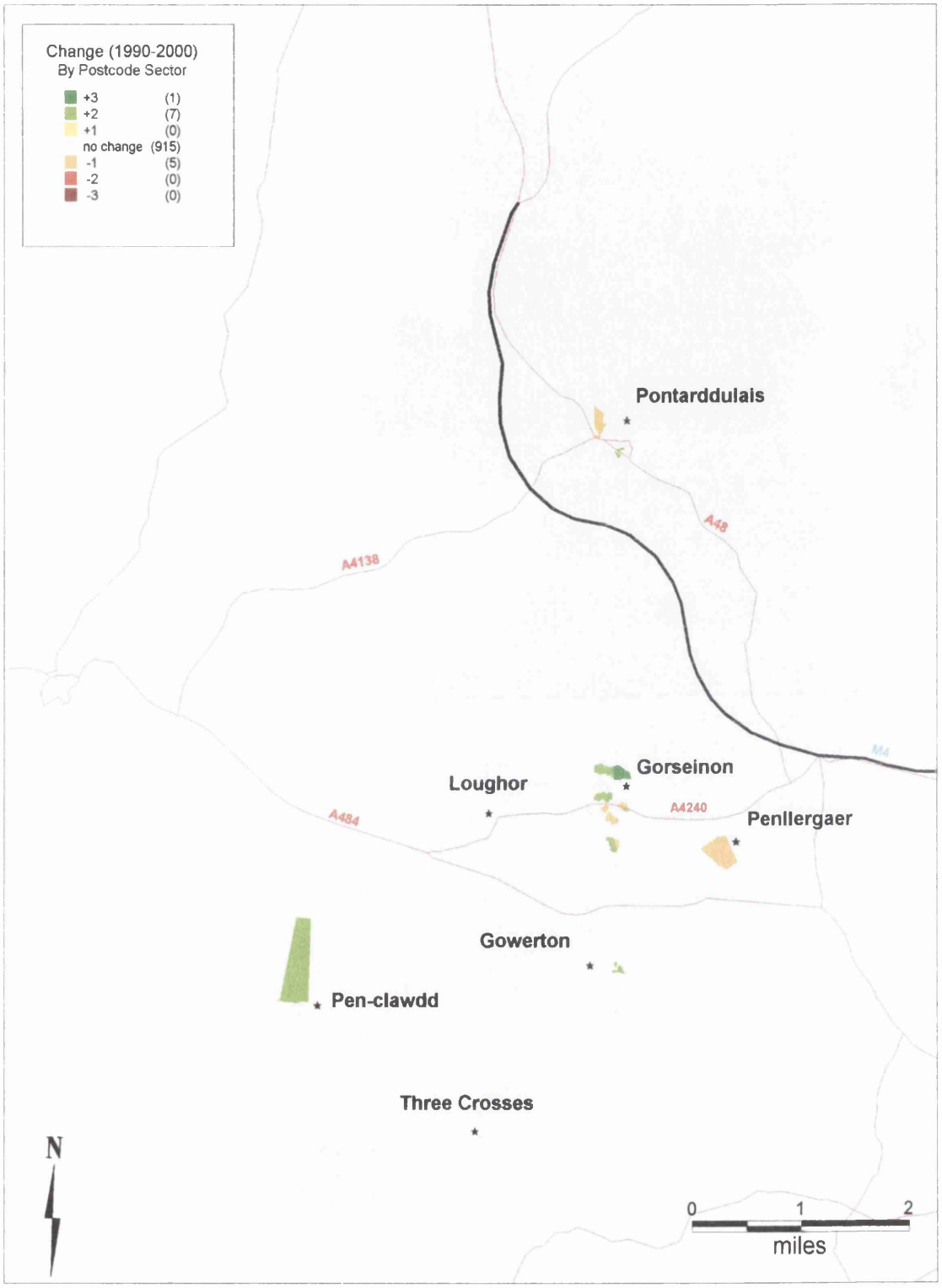


Figure 4.4.3: **Net changes in the number of showrooms (SA4) between 1990 and 2000 by postcode sector**

Net decreases in the numbers of showrooms are visible in central locations along Woodfield Street. One sector bordering this main road has lost two showrooms, and another has lost three. Further back from this road, between

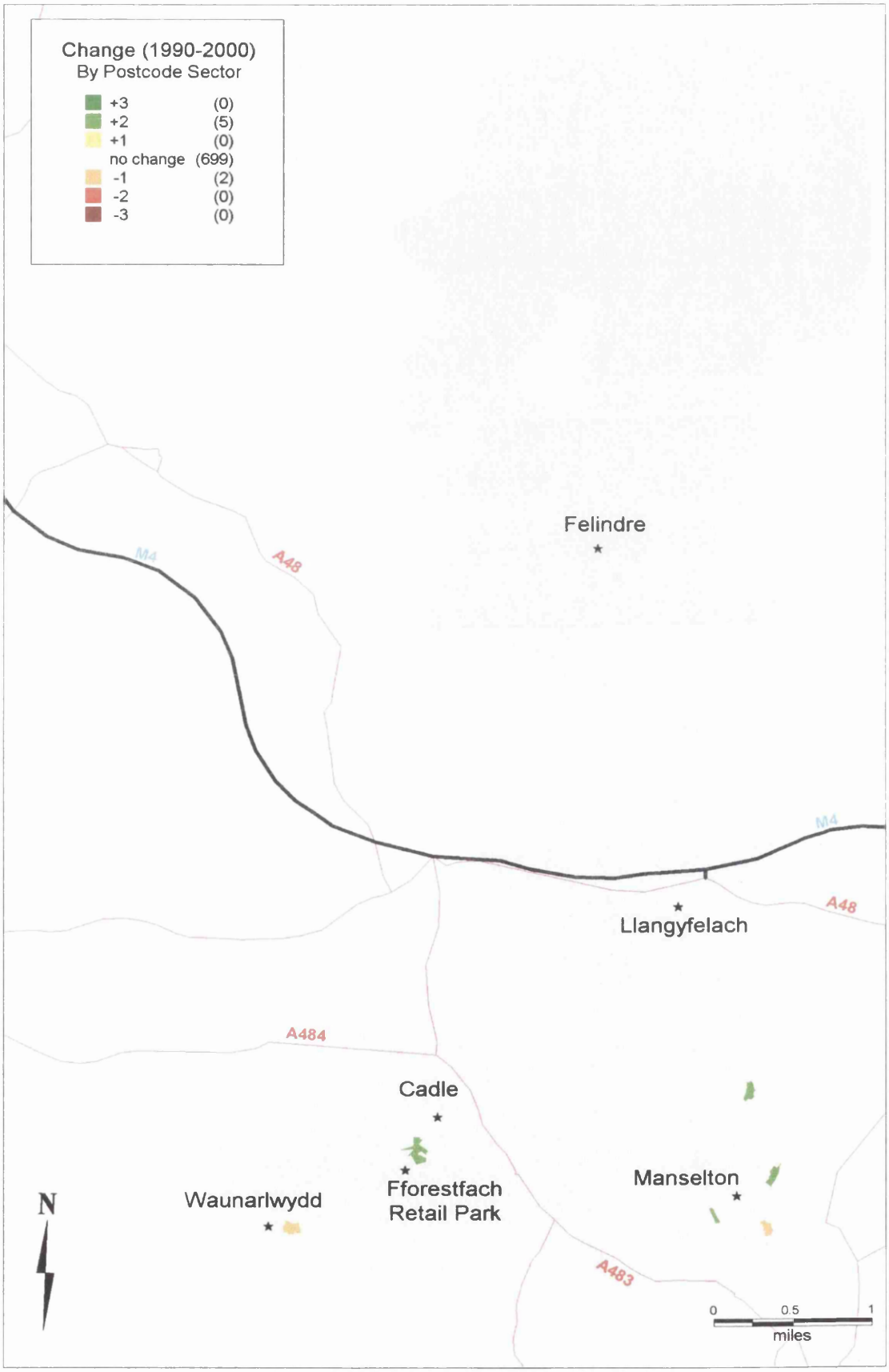


Figure 4.4.4: **Net changes in the number of showrooms (SA5) between 1990 and 2000 by postcode sector**

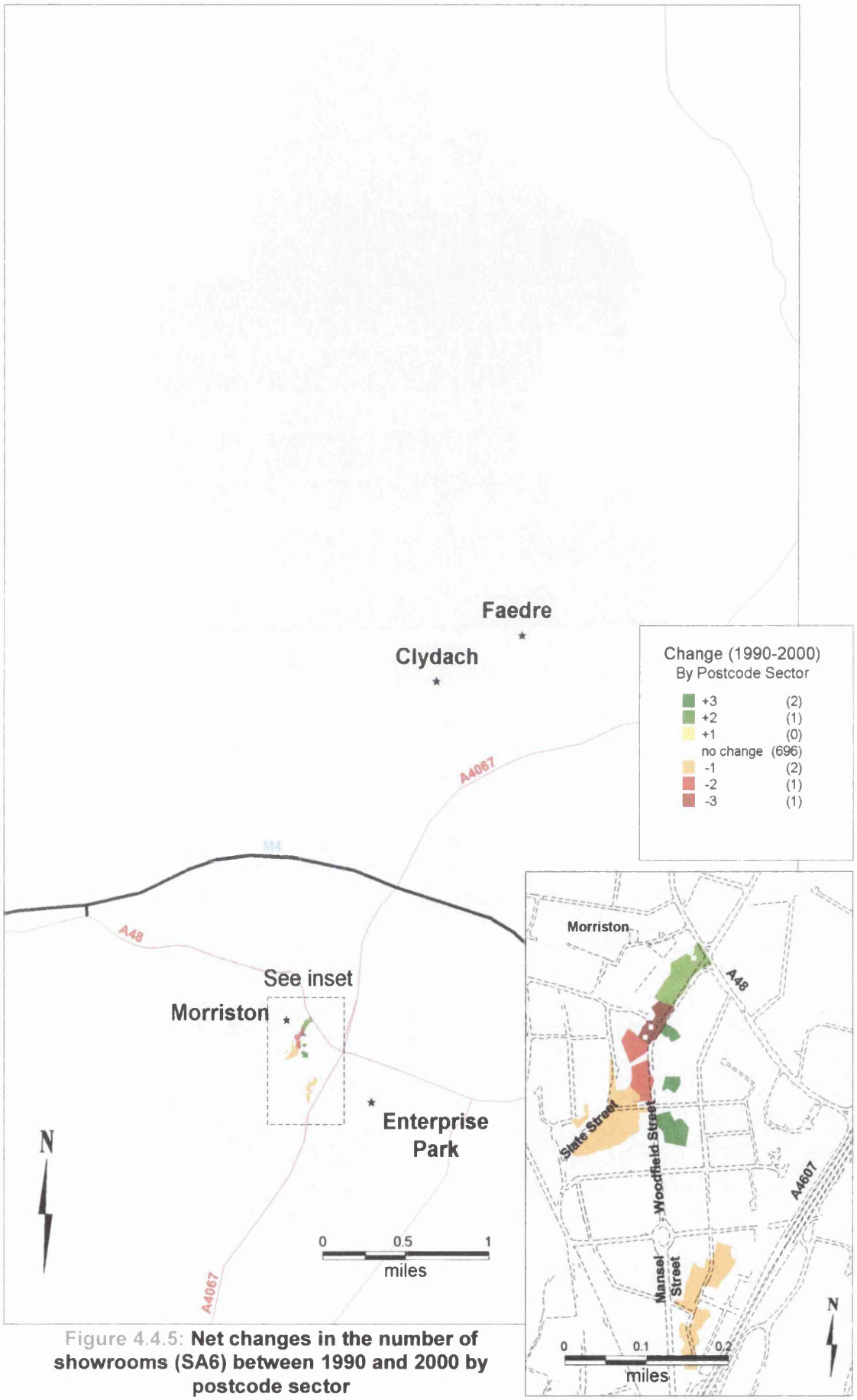


Figure 4.4.5: **Net changes in the number of showrooms (SA6) between 1990 and 2000 by postcode sector**

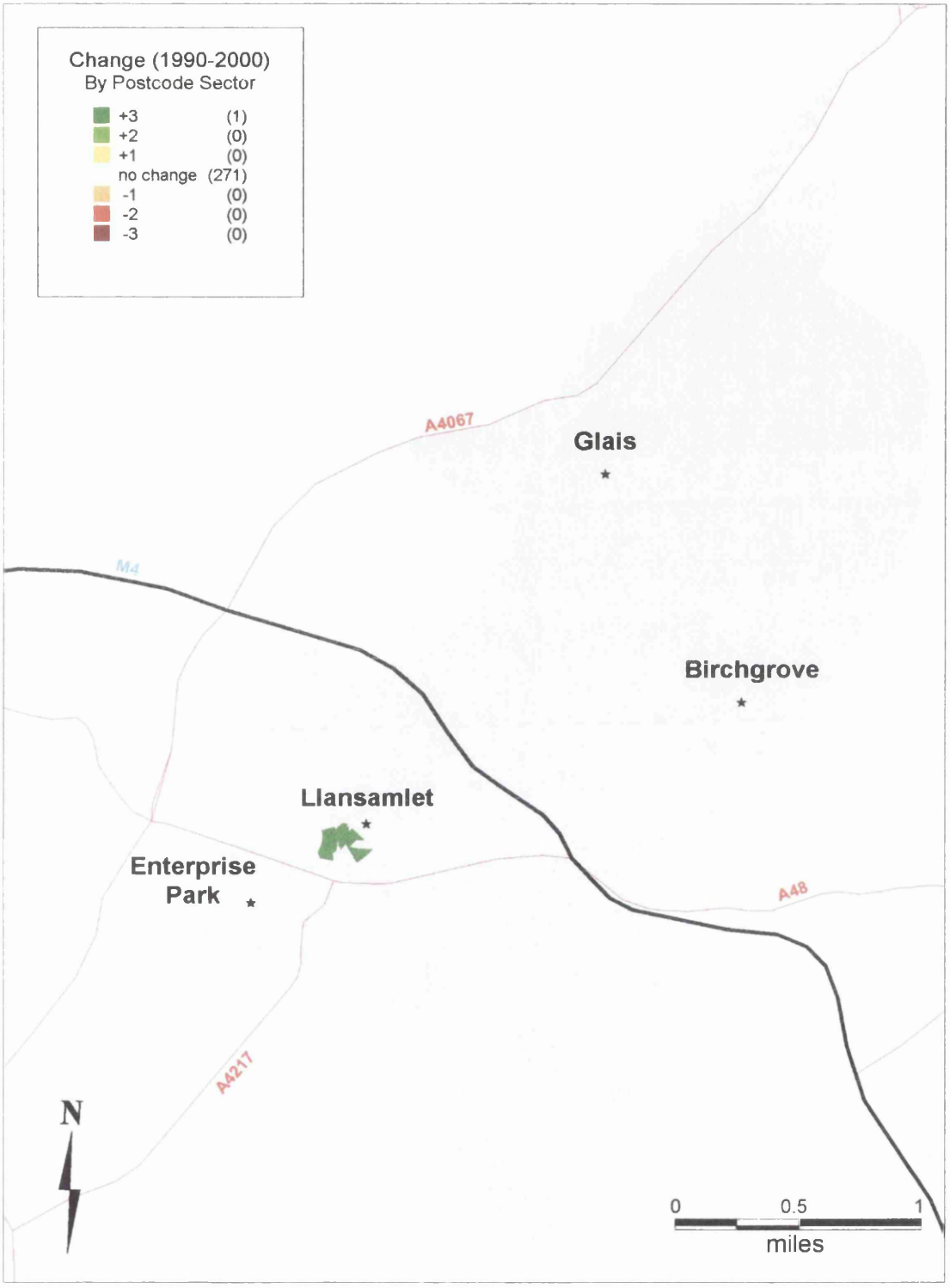


Figure 4.4.6: **Net changes in the number of showrooms (SA7) between 1990 and 2000 by postcode sector**

Woodfield Street and Slate Street, a large sector has lost a single showroom, as has a sector south of Morriston, close to Market Street. Overall, it is evident that the pattern of the location of showrooms seems to be moving northward, to those sites which are situated closer to the busy A48 major road.

Eastern Swansea, the SA7 postcode district (Figure 4.4.6), has experienced minor changes in the number of showrooms over the ten year period. The only recorded change is at Llansamlet, just north of the Swansea Enterprise Park, where a single postcode sector exhibits a net gain of three showroom outlets.

With the exception of SA6, all of the studied postcode districts exhibit net increases in the number of showrooms. It is clear that new outlets are choosing to locate in larger centres with an abundance of suitable existing premises, which are also in close proximity to a major traffic routeway.

4.5 | Licensed and Entertainment Premises

Licensed establishments are usually based in 'off-street' premises. They may include public houses, wine bars, nightclubs, restaurants/food courts and similar establishments licensed to serve alcohol and to serve food. Entertainment premises are usually designed with the sole function of public entertainment and/or leisure purposes. Bingo halls, cinemas, theatres, bowling alleys, and other premises which provide similar entertainment functions to the public are included in this category (see appendix A1).

The patterns of change in the number and spatial location of licensed and entertainment premises in SA1 show no distinct patterns (Figure 4.5.1). Increases and decreases are spread geographically with no strong trend apparent. Net increases in the number of licensed and entertainment premises are visible at Parc Tawe, and immediately north of the town centre around Castle Square. Similar to other commercial trends seen previously, the majority of net increases seem to be occupying roadside areas, most probably for ease of customer access and high visibility.

Large decreases are visible in the city centre, and bordering many road junctions on the periphery of the centre. Two sectors along High Street have experienced losses of between three and five licensed or entertainment premises. In contrast, a postcode sector almost opposite these two losses has

Figure 4.5.1: **Net changes in the number of licensed and entertainment premises (SA1) between 1990 and 2000 by postcode sector**

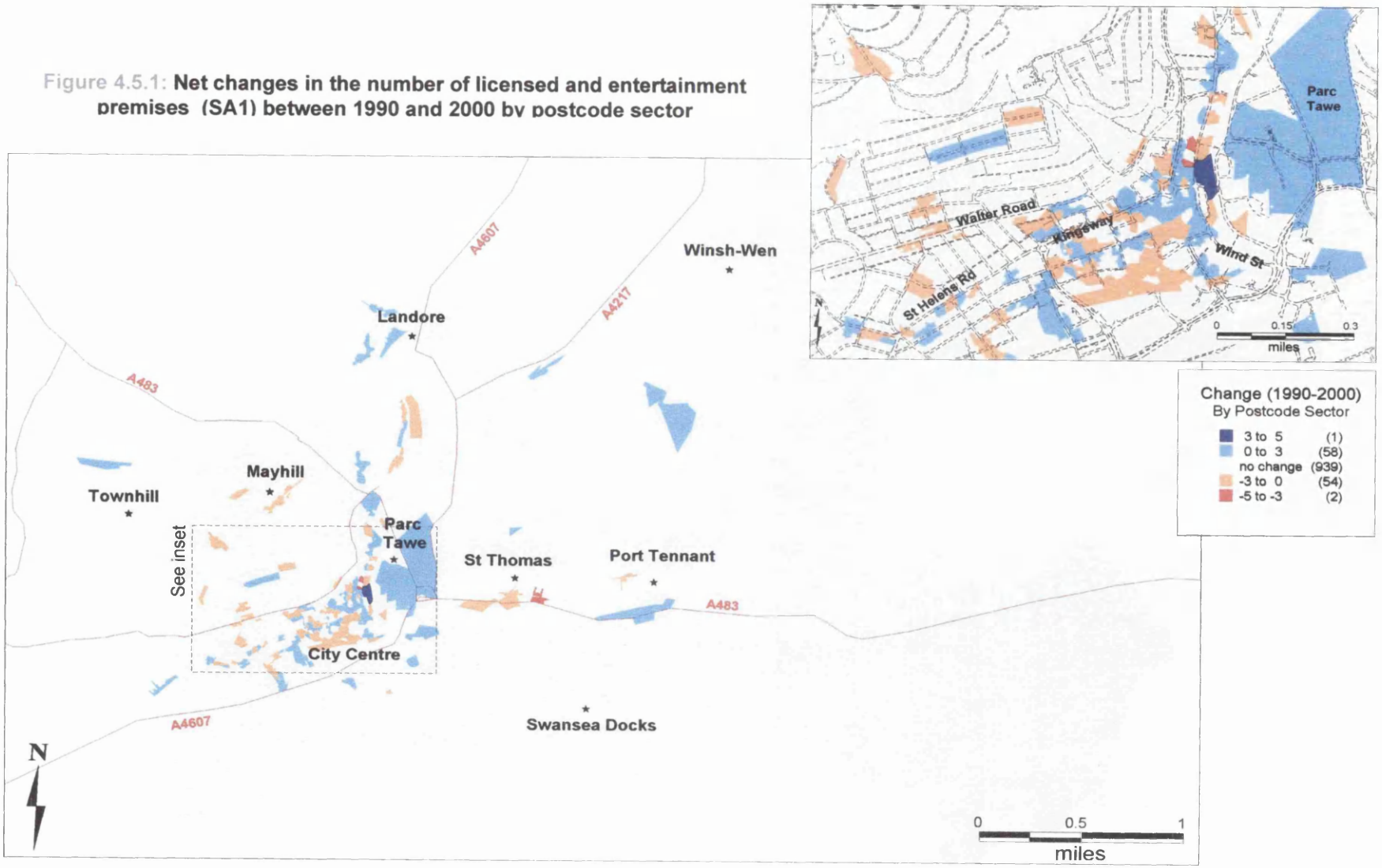
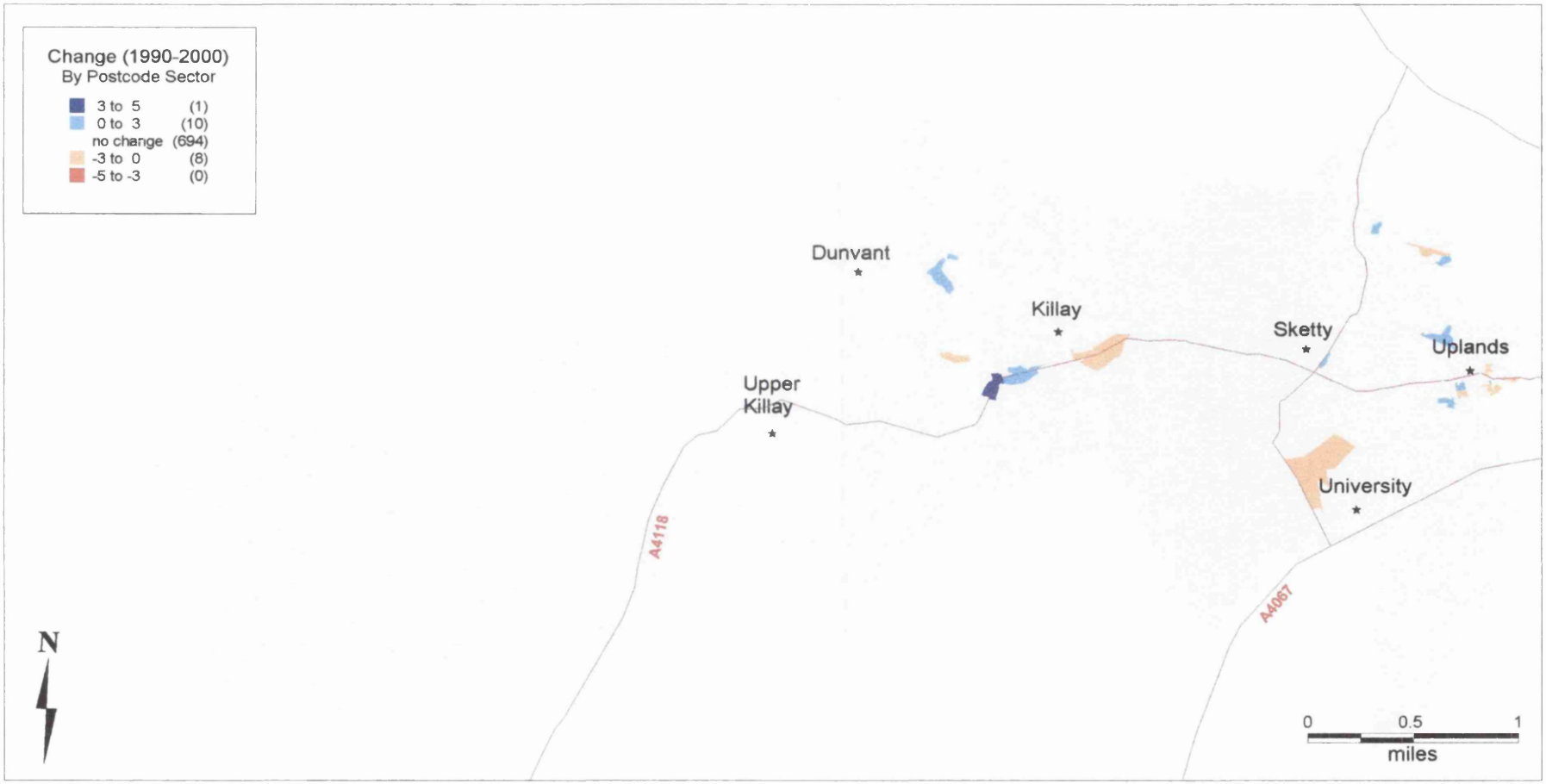


Figure 4.5.2: **Net changes in the number of licensed and entertainment premises (SA2) between 1990 and 2000 by postcode**



experienced an increase of between three and five premises. Further out of the city centre, St Thomas and Mayhill have observed the greatest losses of licensed and entertainment premises. Landore and a large sector just south of Port Tennant have experienced rises in the number of these premises, again perhaps due to their proximity to busy transport routes.

Figure 4.5.2 illustrates the changes in the number of licensed and entertainment premises in the western suburbs of Swansea (SA2). Similar to the trends seen in the other commercial categories, most of the changes have taken place towards the east of Dunvant. The areas surrounding Killay have experienced both positive and negative net change. Two of these areas have lost up to three premises, and two have gained; one up to three and one between three and five licensed or entertainment premises. To the north of killay, just east of Dunvant, one postcode sector has gained up to three licensed or entertainment premises. Further East, a small sector at Sketty has witnessed increases of up to three premises. South of this, close to the university, a reasonably large postcode sector has lost up to three of its licensed or entertainment premises. Uplands has seen varied changes, both increases and decreases, although none is larger than plus or minus three premises, respectively.

Patterns of change in SA4 are highlighted in Figure 4.5.3. Pontarddulais in the north has experienced a general negative change in the number of licensed and entertainment premises. Visible in this area are net losses of between three and five premises, although net losses of up to three premises are dominant in this area. However, a small postcode sector situated adjacent to these losses has gained up to three premises.

In contrast, Gorseinon has experienced a general net increase in the number of licensed and entertainment premises, with two sectors gaining between three and five premises. Four sectors in the area have also gained, although only up to three premises. Sectors at Penllergaer and Loughor have also gained up to three licensed and entertainment premises. Large sectors at Three Crosses and further north at Berthlywdd have lost up to three premises.

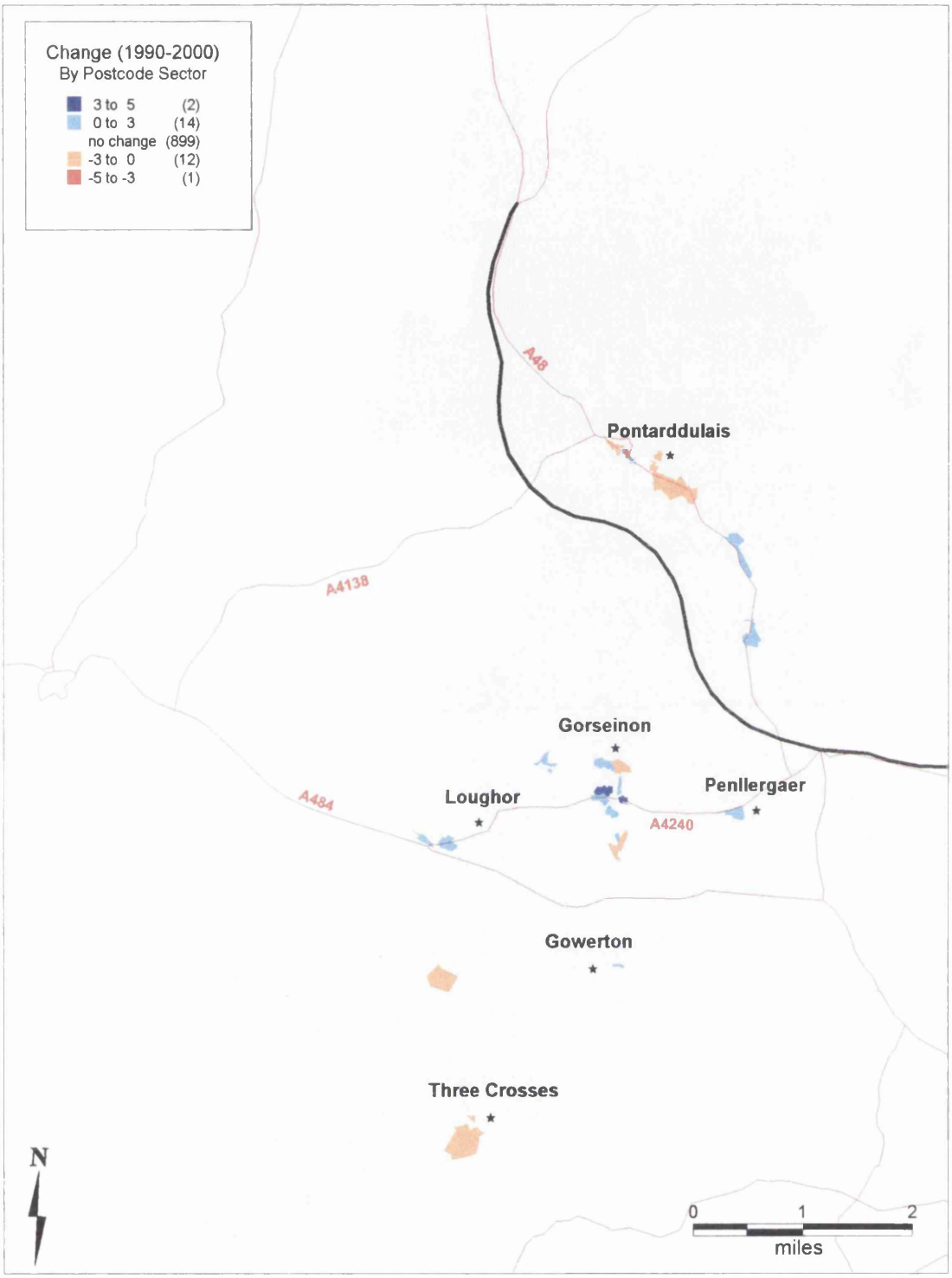


Figure 4.5.3: **Net changes in the number of licensed and entertainment premises (SA4) between 1990 and 2000 by postcode sector**

Changes in SA5 are focused in the south of the district (Figure 4.5.4). Clearly visible in this area are the losses of up to three licensed and entertainment premises in three separate postcode sectors surrounding the Fforestfach Retail park. In contrast to this, the retail park itself has a large (although disconnected)

Figure 4.5.4: **Net change in the number of licensed and entertainment premises (SA5) between 1990 and 2000 by postcode sector**

sector which has gained between three and five of these premises. Two other sectors in this area have also gained up to three licensed and entertainment premises. Further losses are visible in Manselton, where twelve postcode sectors have lost up to three licensed and entertainment premises. Having

stating this, seven sectors have gained premises of this type, six gaining up to three and one between three and five. Other losses are evident at Port Mead, on the junction of the A4216, and further north at Tirdeunaw. Increases are observed, but are more widespread, and occupy the areas between Penlan and Gendros, and Port Mead and the Industrial Estate.

Interestingly, despite the continued growth of the Swansea Enterprise park south of SA6 and to the west of SA7 (Figure 4.5.5), there have been no recorded changes in the number of licensed and entertainment premises over the ten year study period throughout these two districts. These functions, therefore, are not part of the growth and decline patterns within the Enterprise Park itself.

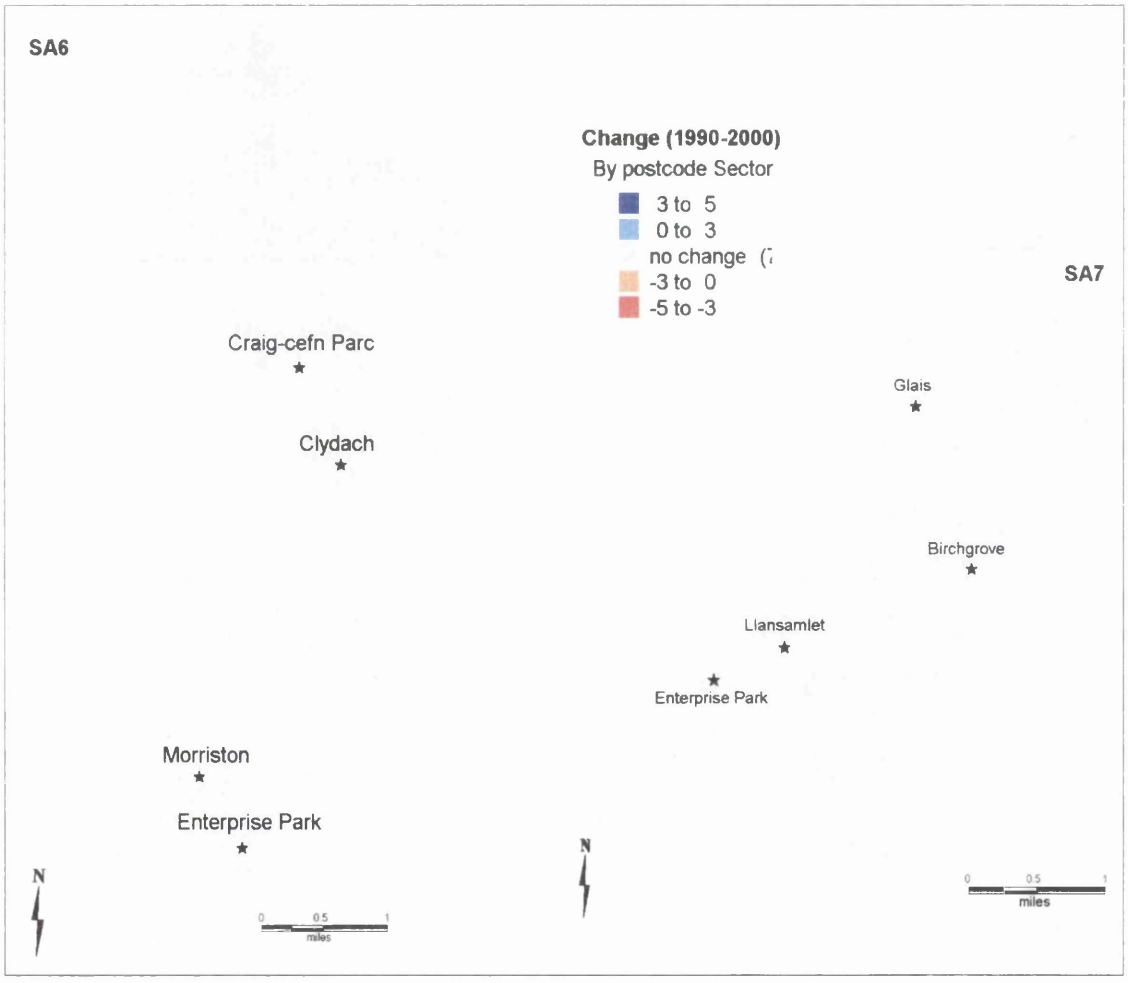


Figure 4.5.5: **Net changes in the number of licensed and entertainment premises (SA6 and SA7) between 1990 and 2000 by postcode sector**

Similar to trends in other categories of commercial outlet, the location of licensed and entertainment premises is shifting towards the more accessible locations, adjacent to major roads. It is also evident that such premises are locating in the

retail parks in SA1, at Parc Tawe and in SA5 at the Fforestfach Retail Park. There is continued growth in the number of licensed and entertainment premises in the city centre, despite decreasing numbers of premises towards the outskirts of the centre. The smaller commercial centres, with the exception of Gorseinon, are all showing evidence of decreasing numbers of licensed and entertainment premises. Despite the continuing growth of the Swansea Enterprise Park as a commercial centre, no changes, either negative or positive are recorded over the ten year study period.

4.6 | Banks and Financial outlets

Patterns in the change of banks and financial outlets follow no clear trends. However, losses of 44 outlets are recorded over the ten year period, and increases of 51 outlets are evident from Figure 4.6.1. Banks and financial outlets are defined as commercial establishments licensed as a taker of deposits, mainly concerned with the financial interest of individual, private customers (see also appendix A1).

In the city centre, a large central sector covering the indoor shopping centre (The Quadrant) has lost one outlet. Sectors on the Oxford Street (south of The Kingsway), and directly west of the centre (William Street) have also lost one outlet. On Union Street, also south of the Kingsway, on the junction of Oxford Street, losses of two banks and financial outlets are evident. Losses are also observable on Walter Road, St Helens Road, south of the city centre, and distributed along Wind Street.

Increases in the city centre are situated on Oxford Street and extending south from this point along Plymouth Street, on the junction of Oystermouth Road and Ffordd y Gorllewin, along St Helens Road, and on the Kingsway roundabout northeast of the city centre. The result of the net losses and gains seen in the city centre has been a minor redistribution of retailing activity in the area.

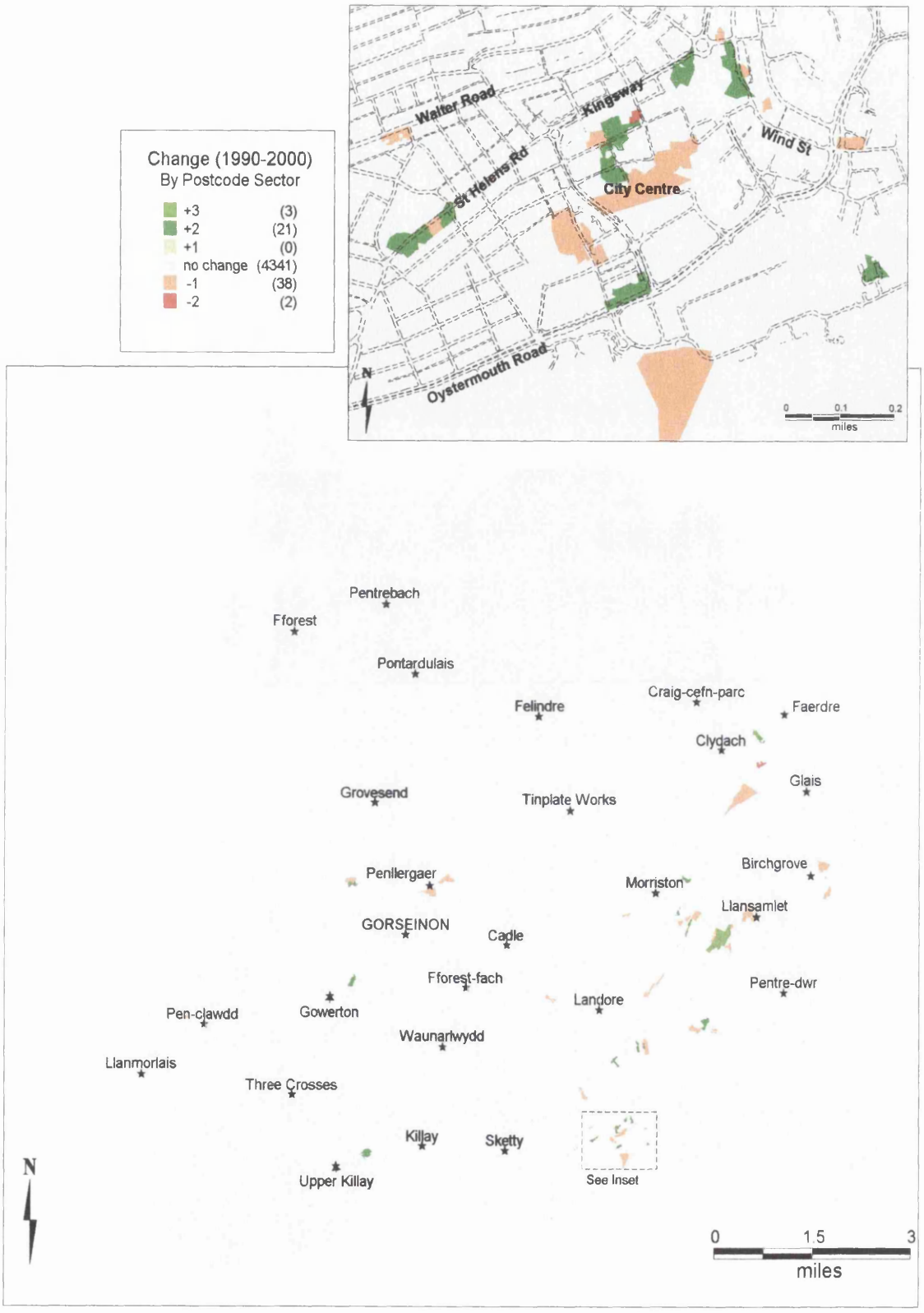


Figure 4.6.1: **Net changes in the number of banks and financial outlets between 1990 and 2000 by postcode sector**

Outside of Swansea's urban centre, losses in the number of banks and financial outlets are visible at Penllergaer, Clydach, Birchgrove, Llansamlet, Morriston

and around Landore. The losses surrounding Morriston and Llansamlet are counterbalanced by two large sectors in the Swansea Enterprise Park which have both gained three outlets. An increase of three outlets is also evident at Clydach, although this is equalised by losses of two outlets in one nearby sector and by one in another. Overall, it seems that district centres have been losing their financial outlets, which have shifted to the growing Enterprise Park.

4.7 | **Total Change**

Figure 4.7 highlights the patterns of net commercial change by both district and category and indicates a general pattern of net decline in patterns of commercial change between the study years in all postcode districts. Of these, both SA1 and SA4, central and north-western Swansea respectively, exhibit the largest net decreases. Of these losses, shops and premises have seen the greatest decline in all study areas, noting the districts of SA1, SA2 and SA4 in particular. Further losses can also be seen in the number of banks and financial outlets in all districts, with the exception of SA2 which has witnessed a net growth of one outlet. The number of large foodstores has increased in all but two districts, SA7 and SA2, which have lost one and remained unchanged respectively.

Changes in other categories of commercial outlet remain varied throughout the study area. There has been a distinct rise in the number of retail warehouses in central Swansea (SA1) which contains the Parc Tawe Retail Park, and in the north of Central Swansea, in SA5, which contains the Fforestfach Retail Park There is also a sizeable drop evident (minus five outlets) in SA4.

Whilst the number of retail warehouses in SA6 and SA7, northeast and east Swansea remains unchanged, a net rise of one and five is visible in west Swansea (SA2) and North Swansea (SA5) respectively. Similarly, the number of licensed and entertainment premises have seen varied change through the study area, the largest net increase being in the north-east, in the SA6 postcode

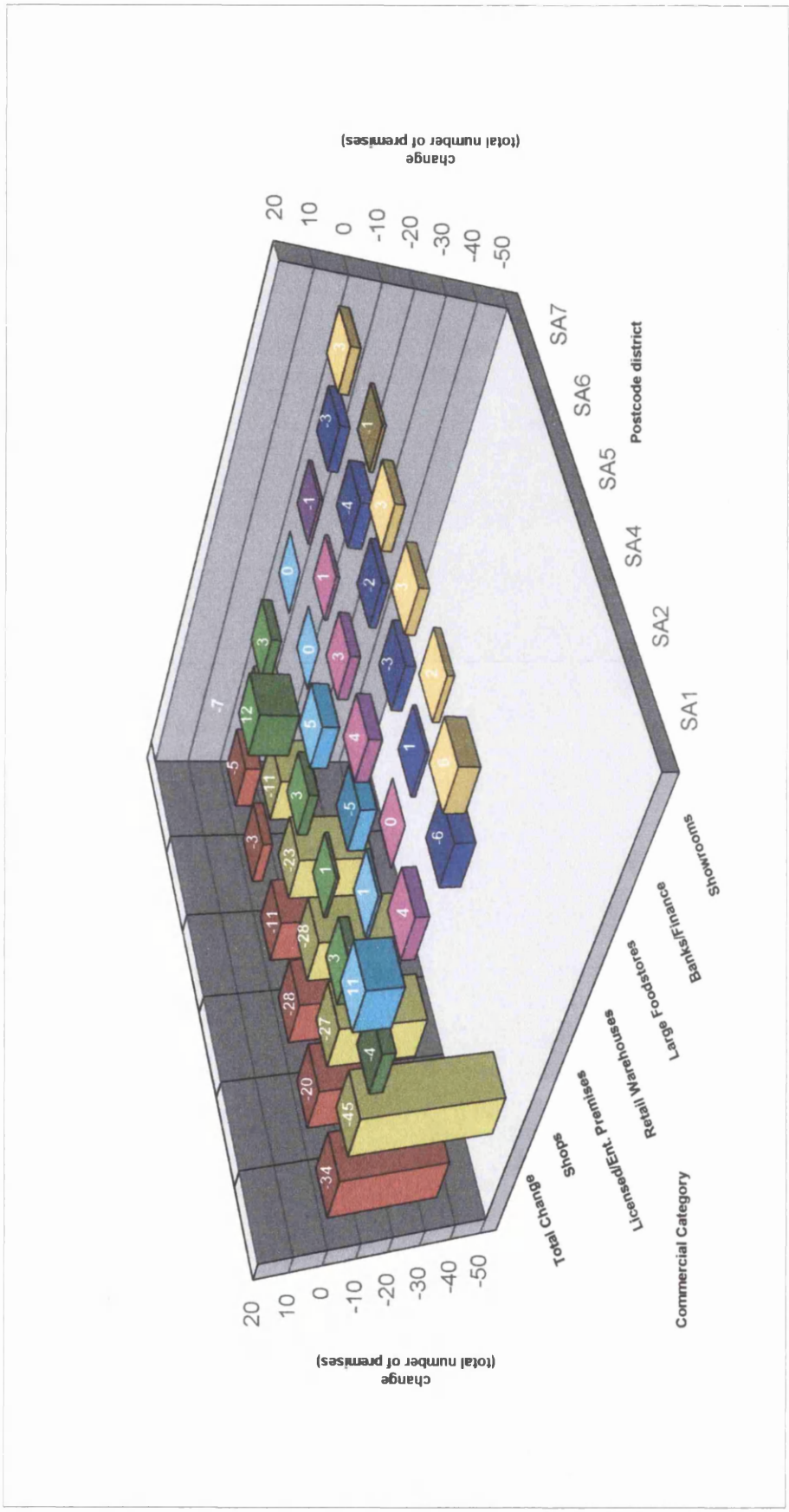


Figure 4.7: **Graph of commercial change 1990-2000 in urban Swansea**
(By category and postcode district)

district. The number of showrooms has increased in all but one district (SA6), most notably in SA1, with an increase of six outlets.

SA1, Central Swansea, has seen a spatially varied transformation in the total number of commercial outlets (Figure 4.7.1). Whilst the total number of commercial outlets in the majority of the districts remains unchanged, the city centre has witnessed the greater part of these changes, with distinct patterns occurring within the area. Most notably, the Parc Tawe retail park has seen a net increase of between six to eight commercial premises. Similar net increases can be seen on the north end of Wind Street and in the city's retail centre on Union Street. Having stated this, it is clear that a postcode sector on Union Street has seen a net loss of between six and eight commercial premises. Further distinct losses can be seen to the north of High Street, and to the west, along Walter Road and St Helens Road. Referring back to Figure 4.7, it becomes clear that the majority of these losses are shops, with further losses from bank and finance outlets, and from licensed and entertainment premises. The number of retail warehouses, large foodstores and showrooms within this district has risen dramatically over the ten year period.

Net changes in SA2, western Swansea (Figure 4.7.2), are geographically widespread. The bulk of the changes have been negative, especially around the Uplands and Brynmill suburbs. Where changes have occurred, however, they are minimal, with the greatest loss no higher than two outlets, and the largest gain no higher than four. There has been a distinct drop in the number of shops in SA2 over the study period, and only relatively small increases in the other commercial categories (Figure 4.7).

Figure 4.7.3 shows minimal changes to the total number of commercial outlets in north western Swansea (SA4). Patterns of change are visible, however, around Gorseinon and Penllergaer. Net changes in these are areas are predominantly positive. Three Crosses in the south and Pontarddulais in the north have both witnessed negative changes in the total number of commercial outlets. Although the overall changes in the total number of commercial outlets have remained relatively small, there are distinct differences in the number of outlets by category (Figure4.7). There have been marked decreases in the number of retail

Figure 4.7.1: **Net change in the total number of commercial Hereditaments in SA1 (1990-2000) by postcode sector**

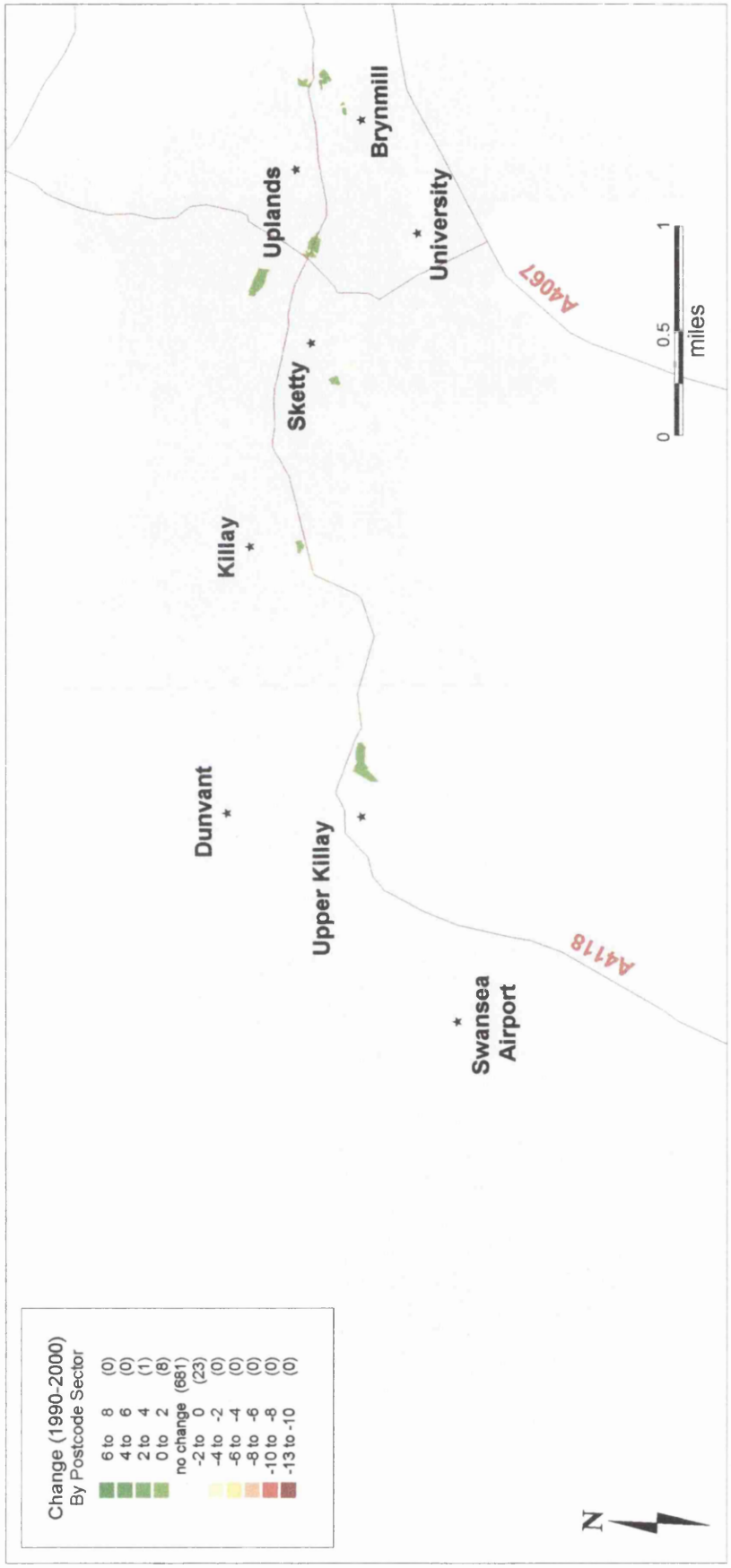


Figure 4.7.2: **Net change in the total number of commercial Hereditaments in SA2 (1990-2000) by postcode**

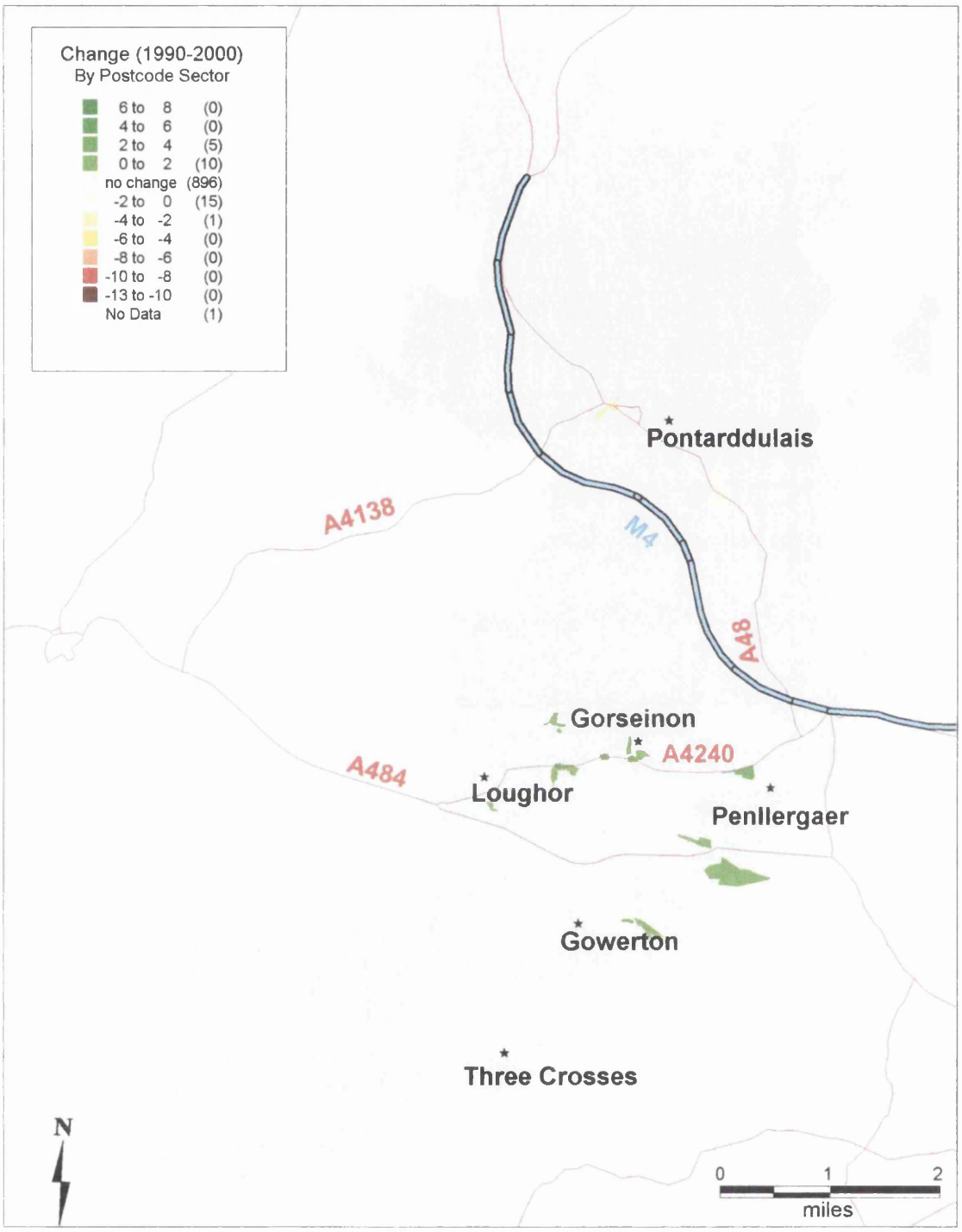


Figure 4.7.3: **Net changes in the total number of commercial Hereditaments in SA4 (1990-2000) by postcode sector**

warehouses and banks and finance outlets in SA4. The number of large foodstores has increased, as has the number of licensed premises and entertainment outlets and commercial showrooms. The number of shops over the ten year period has remained unchanged.

Northern Swansea (SA5) has witnessed diverse changes in the total number of commercial outlets (Figure 4.7.4). Spatially, the majority of these changes have been towards the south of the postcode district. Felindre, in the north has experienced a growth of up to two commercial outlets. Interestingly, the postcode sector at Cadle has seen a net loss of up to eight commercial outlets, whilst a number of postcode sectors in an area near the Fforestfach Retail Park have observed a net increase of up to 6 outlets, perhaps indicating heightened competition and the success of commerce within the Industrial Park. Figure 4.7 further reinforces this heightened competition, as there is a profound net decrease in the number of shops, and a comparable net rise in the number of retail warehouses in the district. The areas surrounding Gendros, Cwmdu and Manselton have observed both net losses and increases, with the greatest losses immediately east of Manselton and to the west of Gendros.

Figure 4.7.5 shows the net changes in the number commercial outlets in SA6, north-east Swansea. In the north, changes are focused in those postcode sectors surrounding the towns of Clydach and Faedre. In this area, distinct losses are visible, with many postcode sectors losing between one and thirteen commercial outlets.

Towards the south of SA6, those postcode sectors around Morriston and the Swansea Enterprise Park have witnessed varied changes in the total number of commercial outlets. Whilst the Enterprise Park has gained commercial outlets, its adjacent district centre, Morriston has become victim to the inevitable competition and has subsequently suffered many commercial outlet losses. This is highlighted in Figure 4.7, where the loss of shops and bank and finance outlets in SA6 is clearly visible. The only increase in this district has been in the number of large foodstores and in the number of licensed and entertainment premises. Similarly, in eastern Swansea, in SA7 (Figure 4.7.6), the Enterprise park has seen a general growth in the total number of commercial outlets, whilst its neighbouring town, Llansamlet has seen a fall of between four and six commercial outlets. Although the enterprise park has seen a general rise, there are sectors within its boundaries which have seen a relatively large fall in the total number of outlets. Visible in this area are net losses of up to eight outlets.

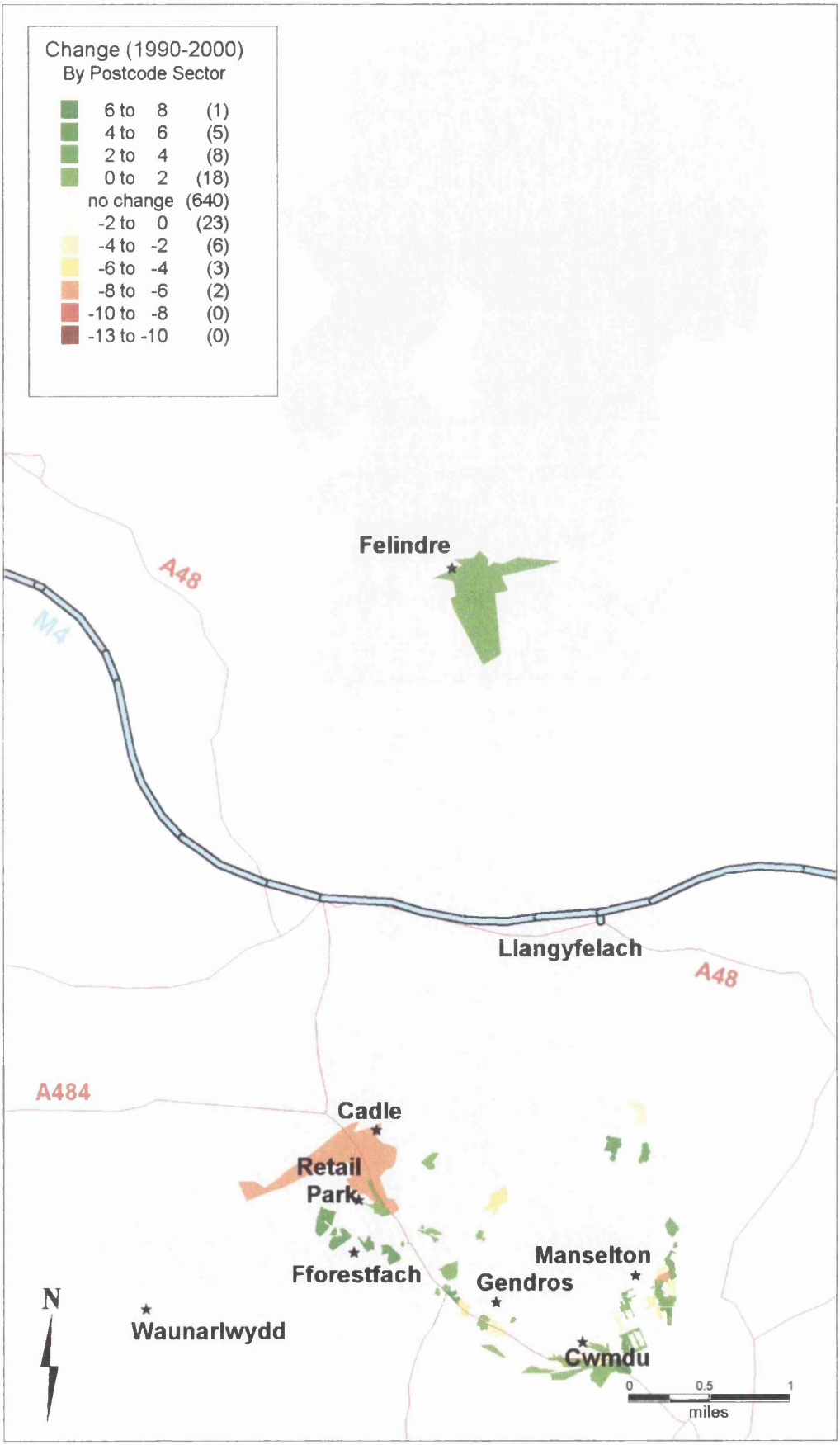


Figure 4.7.4: **Net changes in the total number of commercial Hereditaments in SA5 (1990-2000) by postcode sector**

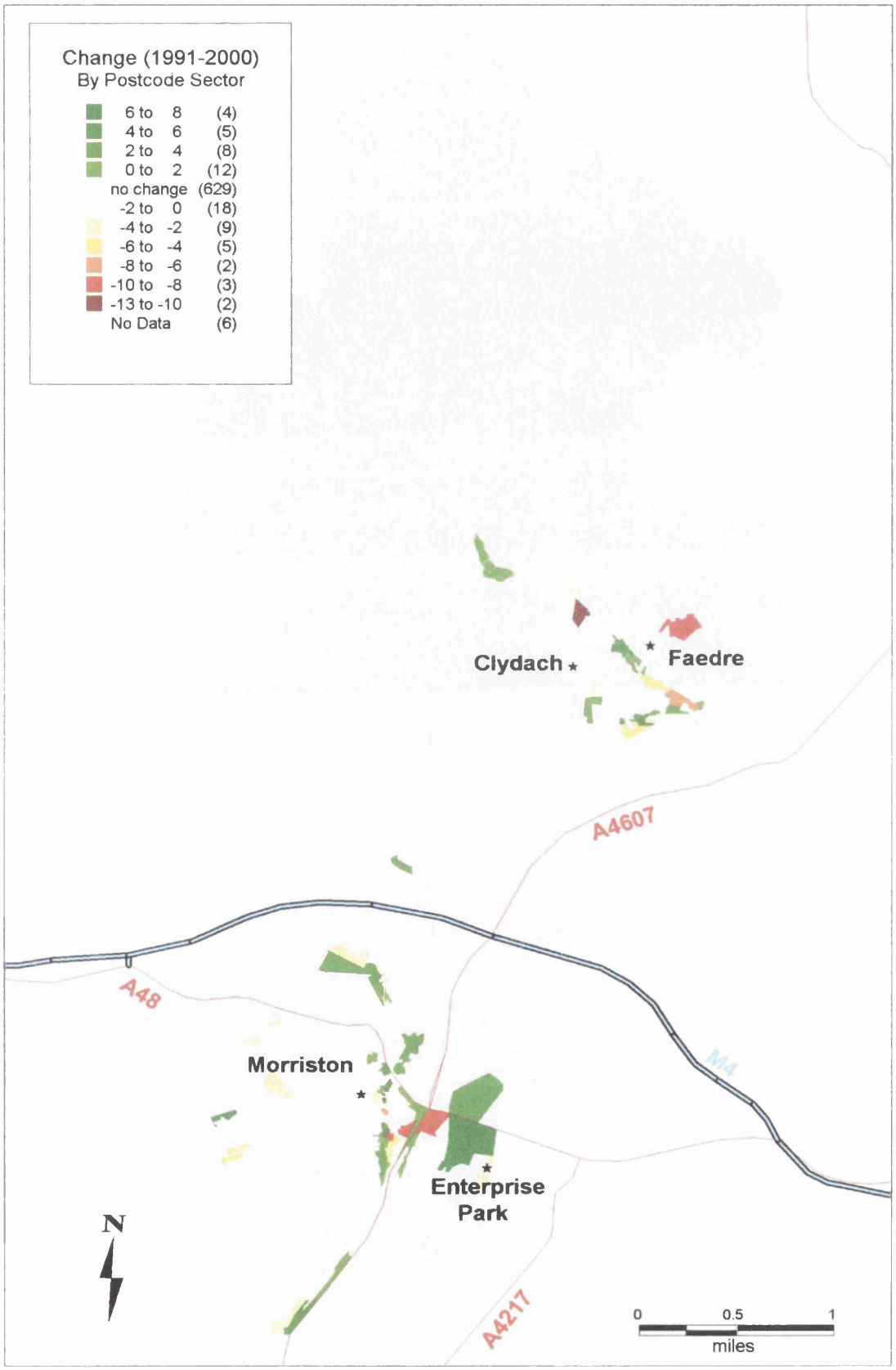


Figure 4.7.5: **Net changes in the total number of commercial Hereditaments in SA6 (1990-2000) by postcode sector**

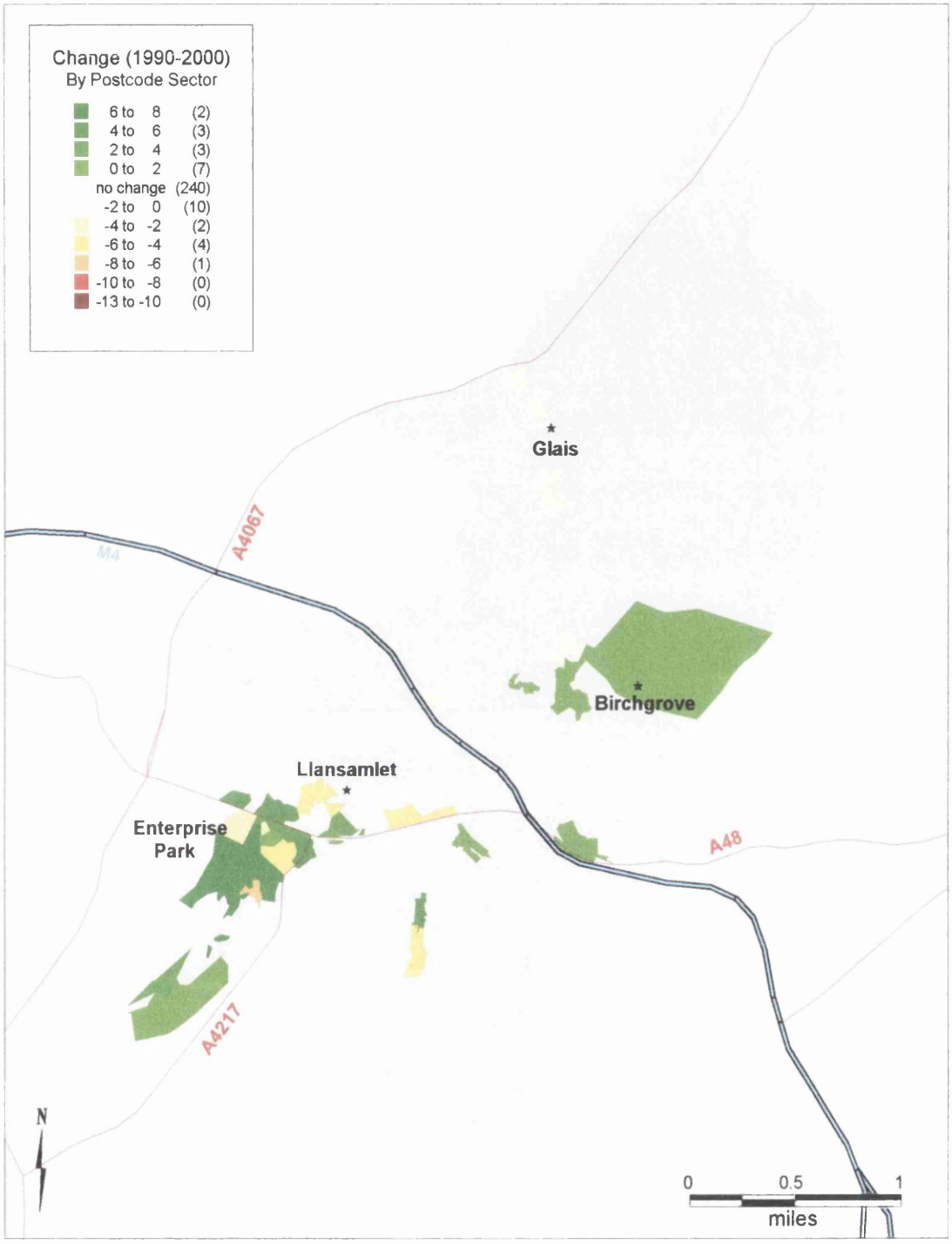


Figure 4.7.6: **Net change in the total number of commercial Hereditaments in SA7 (1990-2000) by postcode sector**

Birchgrove, on the western border of the study area has seen a net rise in the number of commercial outlets. This may be because of its proximity to major transport routes; namely the M4 and the nearby A465 to Neath. Glais, however, has similar advantages of busy transport routes, but has witnessed a fall in the number of commercial outlets.

Banks and finance outlets have seen the largest decrease in their total count in east Swansea (SA7; Figure 4.7). There have also been decreases in the number of shops and large foodstores, and the only increases have been in the number of showrooms and licensed and entertainment premises.

The complicated patterns of net gains and losses are explored further through means of a statistical measurement. As an alternative method of identifying the patterns of total net commercial change between 1990 and 2000, statistical thematic maps of percentage change were included in the study (see chapter 6). Whilst the patterns of retail change visible in these maps do not show any different trends or patterns from those visible in the total net change maps (figures 4.7.1 to 4.7.6), they do offer an alternative means of monitoring retail change, which may be assessed for their effectiveness through discussions with key informants. The findings from these assessments can be found in chapter 5.

4.8 | Rates Change

Another useful aspect of the business rates data is the changing value of the businesses. Recording the changes in the total value of business rates in each postcode sector allows us to gather an indication of the commercial value of that sector. Although rates are likely to increase with inflation, it is the relative changes between districts which is particularly useful in this study. Change by district is shown below in Figure 4.8. From the graph, it is clear that central Swansea, indicated by the SA1 postcode district has shown the greatest increase in total rateable value between the two study years. SA6 and SA7, in the north east and far east respectively also exhibit a large rise in the total value of business rates. Whilst the other three studied districts all exhibit a rise in their total rateable value, the increases are smaller than the other.

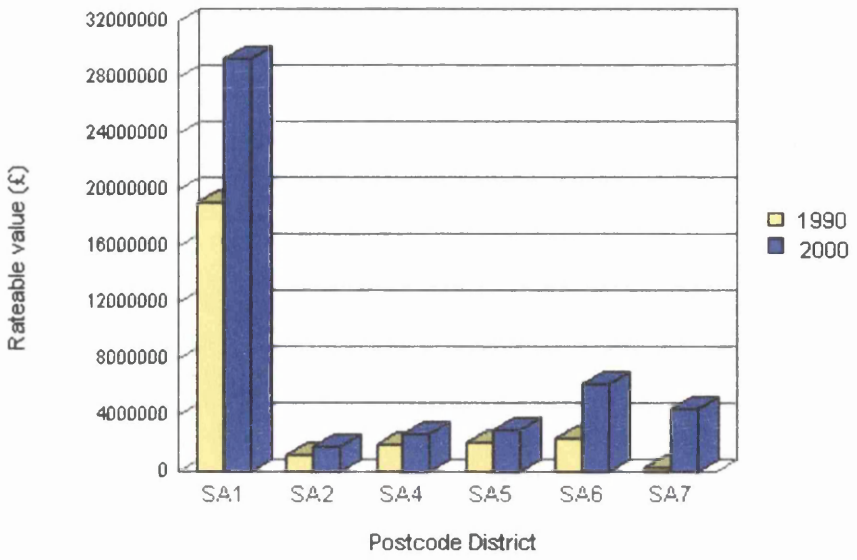


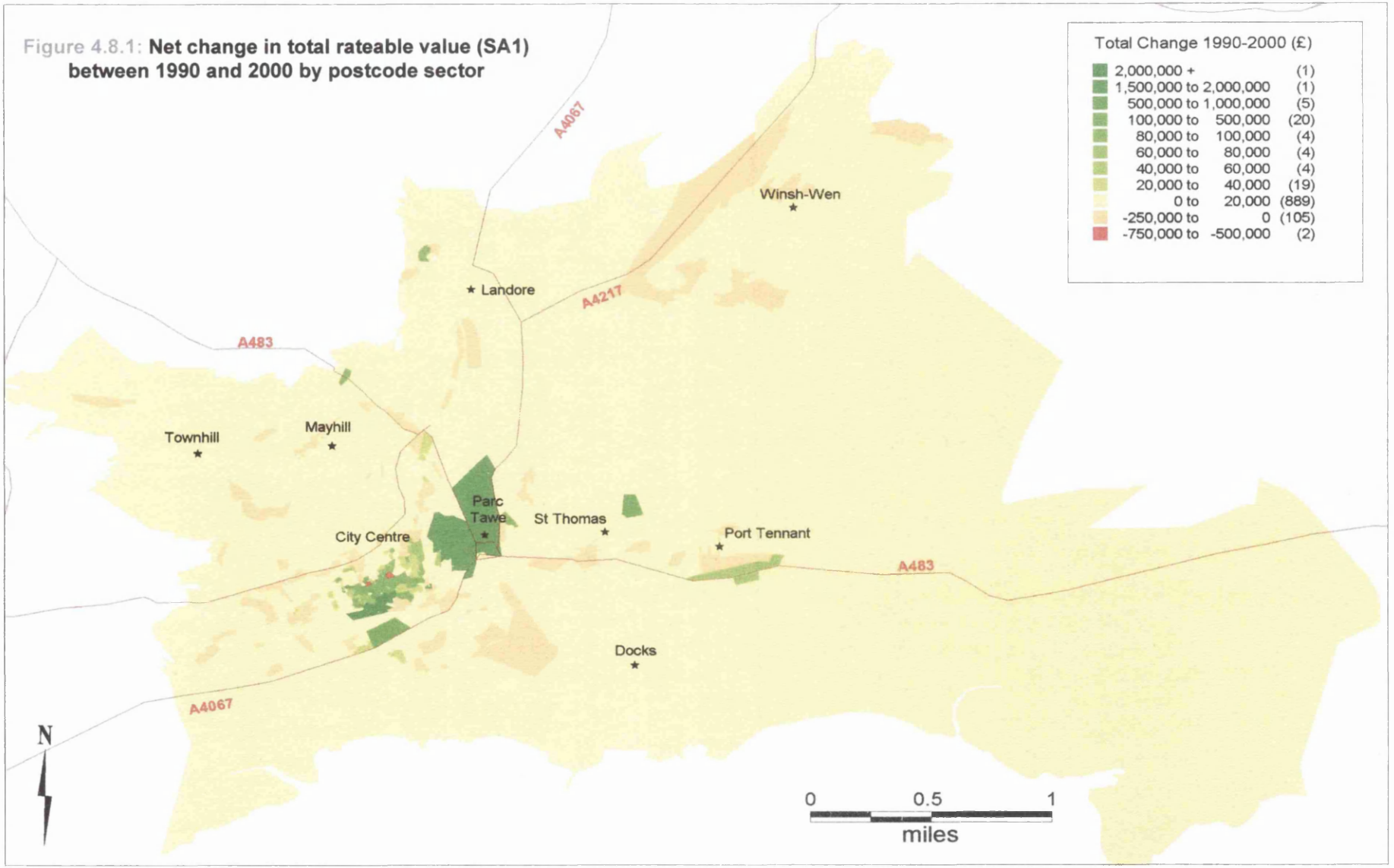
Figure 4.8: **Change in total rateable value by postcode district**

Figures 4.8.1 to 4.8.6 show the changes in the total rateable value for each postcode sector within each of the six districts. SA1 (Figure 4.8.1) shows both increases and decreases in the total rateable value for the district. Whilst nearly the entire district shows increases of up to £20,000 in total rateable value, the majority of the larger increases are situated in and around the city centre, with the largest increase at the edge-of-centre Parc Tawe retail park. This matches the increase in the number of commercial hereditaments in this area, and especially in Parc Tawe, where there is an abundance of retail warehouses (see figures 4.7.1 and 4.3.1). Further increases are also visible at Landore, St Thomas and Port Tennant.

Total rateable value at the outer city centre contrasts with that of the core centre, in that the majority of the postcode sectors in this area are exhibiting a fall in the total value of business rates (up to £250,000). Having stated this, decreases are visible in the city centre, where two sectors show a fall in total value of between £500,000 and £750,000. These patterns are reflected in the change in total number of commercial hereditaments seen in figure 4.7.1.

There are decreases in total rateable value where there are no increases in the total number of commercial hereditaments. These trends are visible at Winsh-wen and Townhill. Similarly, there are increases in the number of commercial hereditaments where there is no increase in total rateable value for that sector.

Figure 4.8.1: **Net change in total rateable value (SA1) between 1990 and 2000 by postcode sector**



This is evident south of Winsh-wen, around Landore and in sectors at the far south of the district.

Whilst the majority of changes in western Swansea, SA2 (Figure 4.8.2), exhibit net increases, (increases of up to £20,000 in 667 sectors), there are 26 separate postcode sectors which record a net decrease in total rateable value of up to £250,000. These are situated at Dunvant, Upper Killay, west of Killay, around Sketty and around the Uplands areas of the district. These changes broadly reflect the falls recorded in the total number of commercial hereditaments seen in Figure 4.7.2.

Net increases in total rateable value are recorded between £20,000 and £80,000. All these increases are situated along the busy Gower Road heading west from the city centre. These changes are situated in Killay, to the east of Killay, Sketty and just neighbouring Uplands. Of these, the largest net increase (between £60,000 and £80,000) has taken place at Sketty, a fairly affluent central western Swansea suburb. This increase, however, is not reflected in the number of commercial outlets in this area, as Figure 4.7.2 shows a drop in the total number of such premises. Changes in the other areas however, do match the patterns of change shown in this Figure.

Figure 4.8.3 shows the net changes in total rateable value in north western Swansea (SA4). Again, the greater part of those postcode sectors within this district show a total rise of up to £20,000 between 1990 and 2000. Greater net increases are focused around the centre of the district, around Gorseinon, Penllergaer and Pontlliw. The largest increases in these areas range from between £20,000 to £500,000, with the greatest of these (between £100,000 and £500,000) being situated just south of Gorseinon, in Gorseinon itself, and immediately west of Penllergaer. The majority of these changes reflect the change in the total number of commercial hereditaments seen in Figure 4.7.3, although a number of sectors which exhibit net growth in total rateable value show no increase in the total number of commercial hereditaments. This is visible in the sector between Gorseinon and Gowerton, and in two sectors west of Penllergaer, each of which show rises in total rateable value of between £100,000 and £500,000.

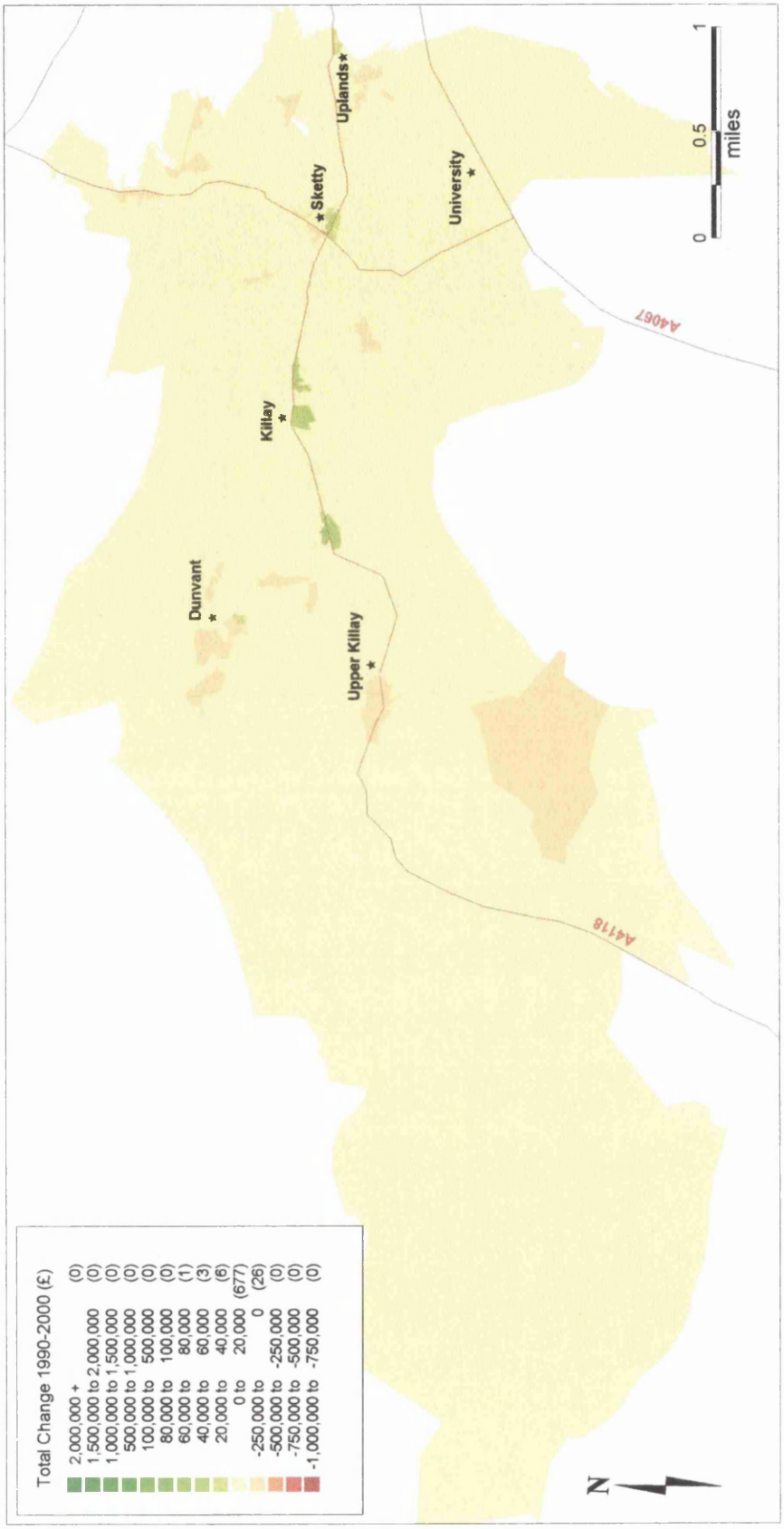


Figure 4.8.2: **Net change in total rateable value (SA2) between 1990 and 2000 by postcode sector**

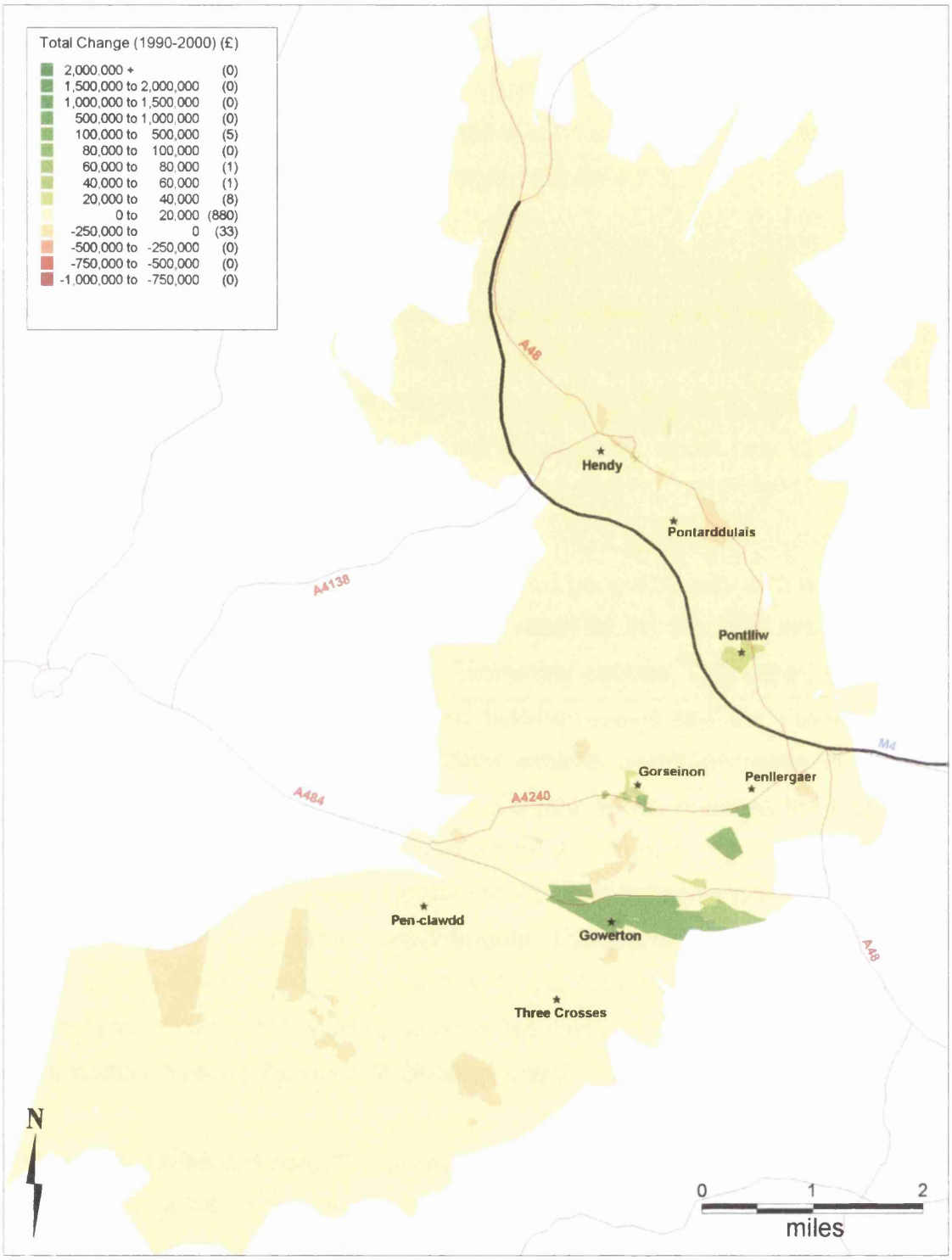


Figure 4.8.3: **Net changes in total rateable value (SA4) between 1990 and 2000 by postcode sector**

Net decreases in total rateable value in the north western district, SA4, are more geographically widespread than the increases. Decreases are visible around Pen-clawdd, Three Crosses, Gorseinon, Penllergaer and around Pontarddulais and Hendy in the north of the district. All of these net decreases are up to

£250,000. However, dissimilar to the net increases in total rateable values, the decreases show no clear relationship to falls in the total number of commercial hereditaments. Large areas around Pen-clawdd, Gorseinon and Penllergaer show falls in total rateable values, whilst there is no evidence of a decline in the total number of commercial hereditaments (see Figure 4.7.3).

Although the majority of postcode sectors in the SA5 postcode district of northern Swansea display net increases in total rateable value of up to £20,000 (652 sectors), the greatest changes in total rateable value are focused towards the south of the district (Figure 4.8.4). In this area, net losses in total rateable value make up the majority of the changes (42 sectors), whilst only 12 sectors show net increases in total values.

Net decreases in total rateable values are spread geographically with no strong visible trends. Having stated this, they do seem to be focused around the Waunarlwydd, Cwmdu, Manselton and Tirdeunaw centres, with other, smaller scale losses visible around Gendros and between Cadle and the Fforestfach Retail Park. One sector north of Gendros exhibits a net decrease in total rateable value of between £250,000 and £500,000, which matches the loss in the total number of commercial hereditaments as seen in Figure 4.7.4. Net decreases in total rateable values for the most part correspond to decreases in the total number of commercial hereditaments. There are, however, losses in rateable values where there are no losses in the total number of commercial hereditaments. These contradicting patterns are evident at Waunarlwydd and in various sectors towards the north of Gendros and Cwmdu.

When related to the changes in the total number of commercial hereditaments seen in Figure 4.7.4, it becomes clear that changes in the total net value of business rates by postcode sector tend to follow the major transport route (A483) through Cwmdu, Gendros, Fforestfach Retail Park and towards Cadle. Unlike the decreases in total rateable values however, the increases do not match the change in the number of commercial hereditaments. This is especially visible at Cadle, where a loss of between six and eight commercial premises is evident, and yet a rise in total rateable value is recorded between £100,000 and £500,000 for the same sector. Similar contradictory patterns are also visible at

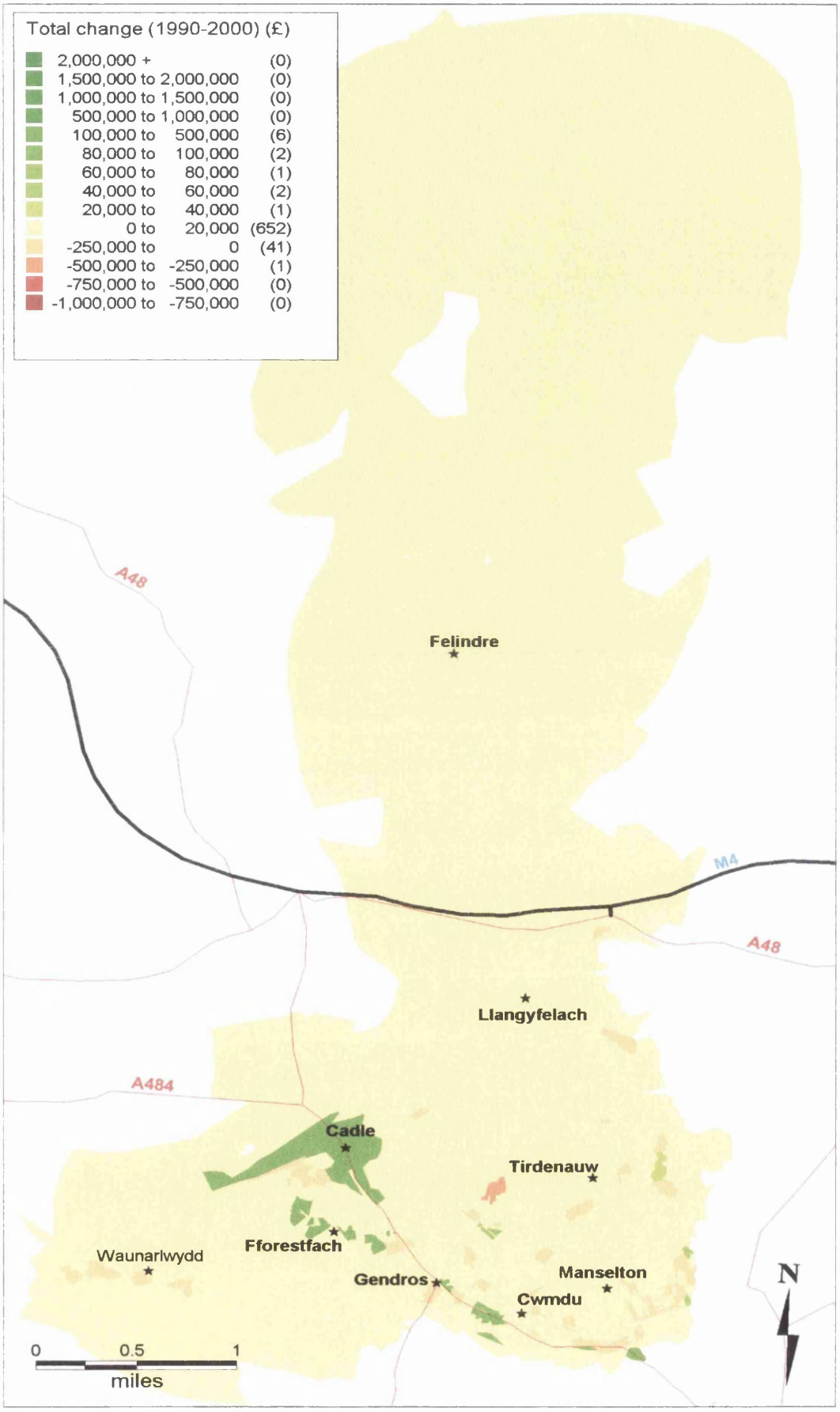


Figure 4.8.4: **Net changes in total rateable value (SA5) between 1990 and 2000 by postcode sector**

Cwmdu centre, where increases in commercial premises are evident, and yet total rateable values have fallen.

Similar to the other postcode districts, north eastern Swansea, the SA6 postcode district, shows evidence of a general net increase in total rateable value in the majority of sectors (Figure 4.8.5), with the bulk of sectors exhibiting a rise in total net rateable value of up to £20,000. Other increases in total rateable value are widespread throughout the district, and vary in total net value between £20,000 and £1,000,000. Around Morriston, many sectors show net increases of between £20,000 and £40,000, two sectors increasing in value by £40,000 and £60,000, and other between £100,000 and £500,000. At the Enterprise Park, two postcode sectors display net increases of between £500,000 and £1,000,000 and £1,500,000 and £2,000,000. Other increases can be observed towards the south of Morriston, north of Cwmrhydyceirw and at Clydach. Net decreases in total rateable values are visible throughout the north eastern SA6 postcode district, all of which exhibit falls in total net values of up to £250,000. When correlated against Figure 4.7.5, the majority of these falls match the changes in the total number of commercial hereditaments. Having stated this, there are a number of differences in a number of sectors. Falls of between eight and ten commercial premises are evident at Morriston, bordering the Enterprise Park, whilst a rise in total net rateable value is visible in this area. Similarly, a large sector in the south of the district, bordering the A4607 main road exhibits a net increase in total rateable value of between £100,000 and £500,000, whilst the total number of commercial hereditaments in the sector has fallen. This is also the case north of Cwmrhydyceirw, where two separate sectors have lost up to two commercial premises, but their total net rateable value has risen by between £40,000 and £60,000.

Figure 4.8.6 shows the net changes in total rateable value by postcode sector in SA7, at the far east of the study area. Visible are wide ranging changes in the total values of business rates in the district, the majority of such changes focused towards the southwest of the district at the Enterprise Park and at Llansamlet. At Llansamlet, a net decrease of between £750,000 and £1,000,000 is visible. This matches the fall in the total number of commercial

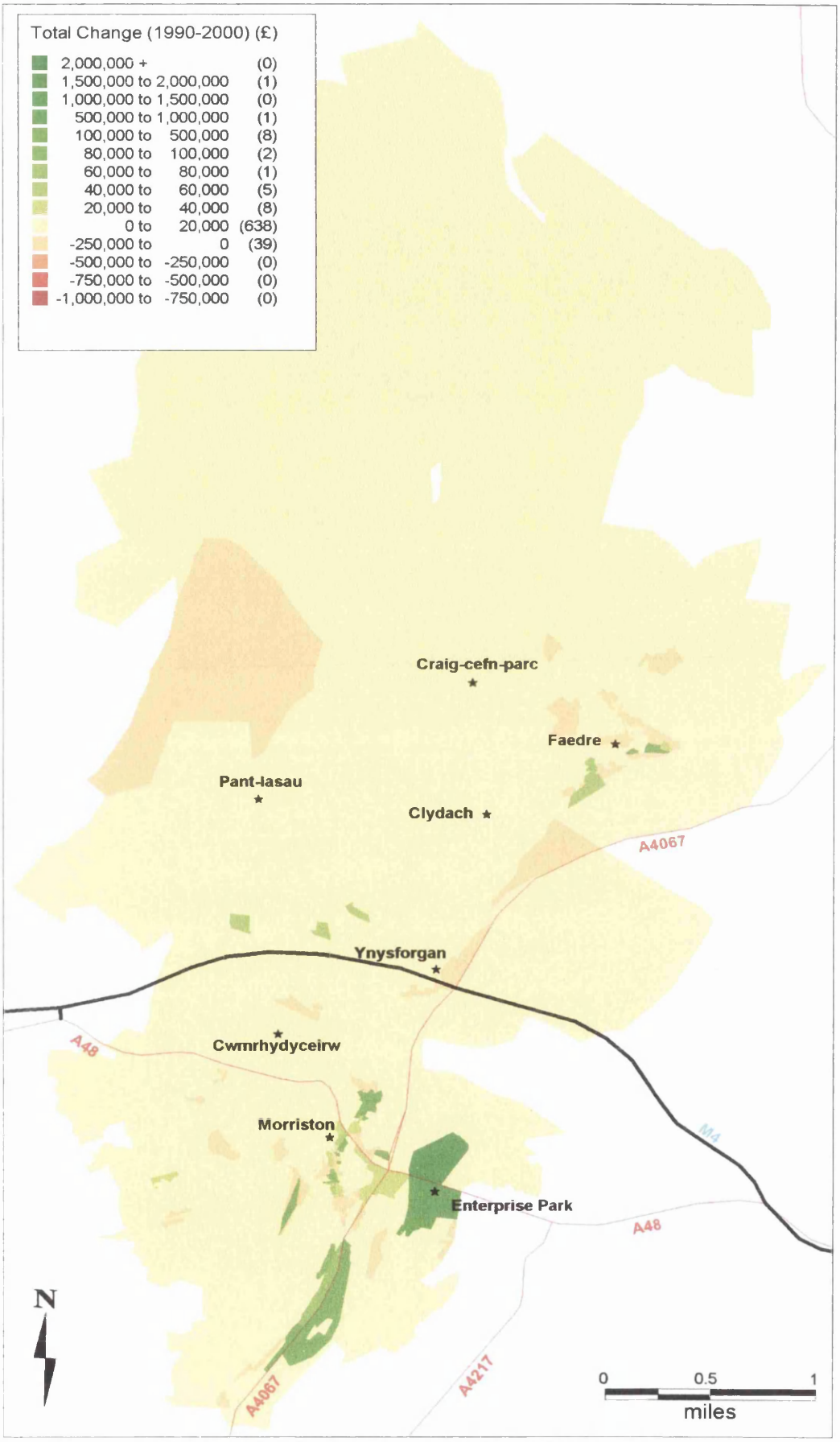


Figure 4.8.5: **Net change in total rateable value (SA6) between 1990 and 2000 by postcode sector**

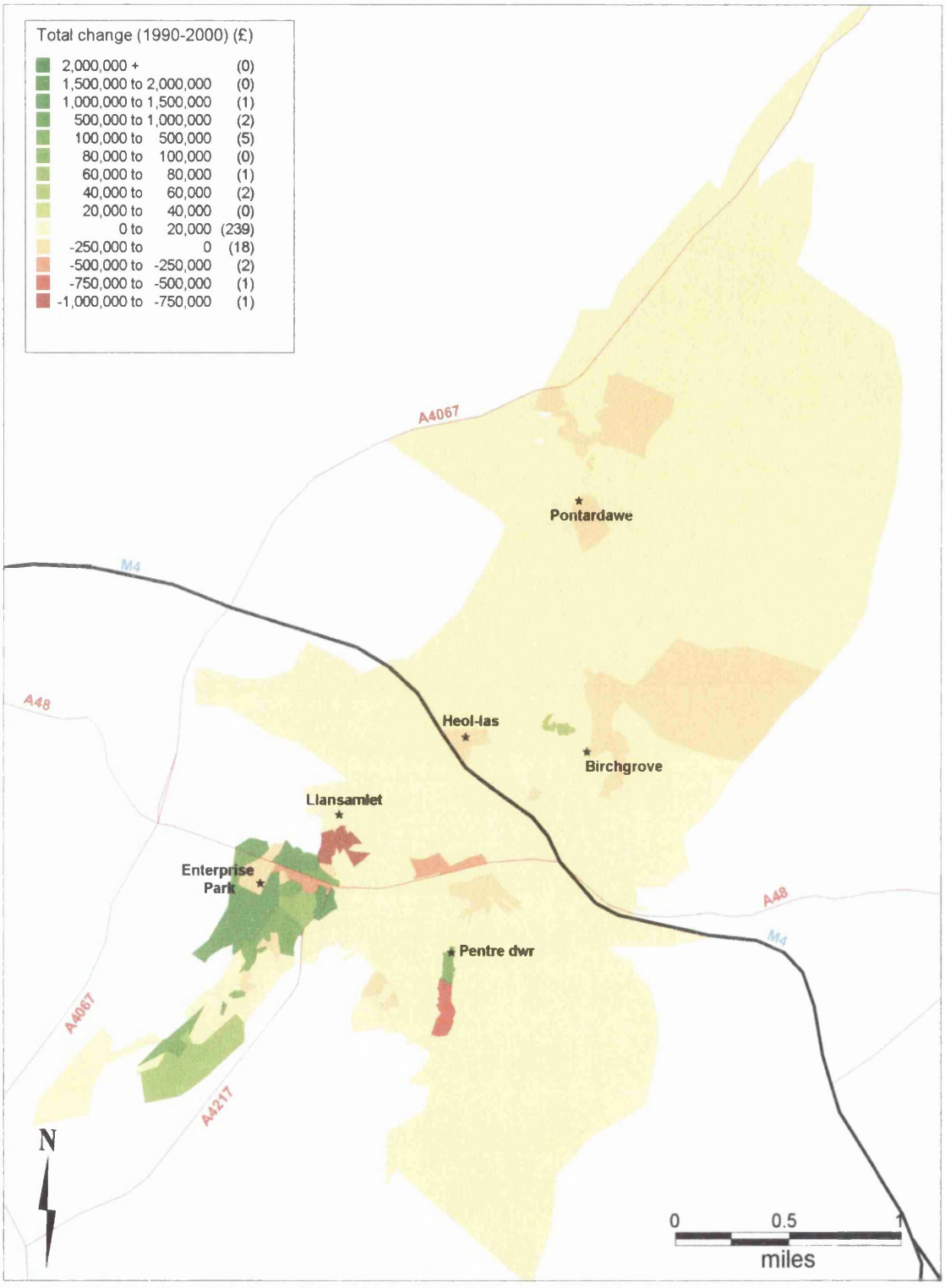


Figure 4.8.6: **Net change in total rateable value SA7 between 1990 and 2000 by postcode sector**

hereditaments seen in Figure 4.7.6. The Enterprise Park itself shows more varied changes in total net rateable value. The majority of sectors within its boundaries exhibit net increases in total value, some to the value of between

£1,000,000 and £1,500,000, although seven sectors show evidence of a decrease in total net rateable value. The net increases and decreases by sector are similar to the changes in the total number of commercial hereditaments, seen in Figure 4.7.6.

To the west of the Enterprise Park, at Pentre-dwr, net decreases in total rateable value are evident to the value of between £500,000 and £750,000. This decrease correlates directly to a loss of between four and six commercial premises. Similarly, north of Pentre-dwr, and west of Llansamlet, one sector shows a fall in total net value of between £250,000 and £500,000, again matching a decrease in the total number of commercial hereditaments within the sector (Figure 4.7.6). Other decreases in total rateable value are evident at Heol-las, Birchgrove and Pontardawe, all of which match the decreasing figures for the total number of commercial hereditaments, with the exception of Birchgrove, which shows an increase of up to two commercial hereditaments between the 1990 and 2000 study years.

4.9 | **Chapter Summary**

This chapter has examined the patterns and trends of commercial change between 1990 and 2000 using a number of visual data representation techniques, including thematic maps and graphs. The chapter was split into sections dealing with different commercial categories and ended with an overview of the changes in the total number of commercial hereditaments and an examination of the change in total rateable values by postcode sector. The chapter includes some preliminary findings which will be summarised in the next few paragraphs.

Although the total number of commercial hereditaments has declined in all six studied postcode districts, the patterns of net change vary considerably by both geographical location and commercial category within each district. There are a number of locations within the study area which exhibit continued growth in their commercial strength, and conversely, there are a number of locations which show evidence of a net decline, despite the wider scale patterns of commercial change occurring in each of the six districts. Most notably, Parc Tawe (SA1),

Gorseinon (SA4), the Fforestfach Retail Park area (SA5) and the Swansea Enterprise Park (SA6 and SA7) all show evidence of a general intensification of commercial activity. Other areas show general increases in commercial strength, despite reductions in a number of commercial categories. These patterns are especially evident at Morriston (SA6), Cwmdu and Manselton, both situated in the SA5 postcode district.

Those areas demonstrating increased commercial strength are often bordered by an area showing patterns of decline. Cadle, situated in the SA5 postcode district, adjacent to the Fforestfach Retail Park, has lost between six and eight premises. A number of areas surrounding the Enterprise Park, including Llansamlet in SA7 have lost up to ten commercial premises. Swansea High Street, just north of the city centre and neighbouring the Parc Tawe retail park has also lost commercial premises between the study years. This indicates a pattern of concentration in the most favourable locations, especially in those which are retail parks.

The number of shops has decreased in all postcode sectors over the ten year period. The SA1, SA2 and SA4 districts have all exhibited net decline in the number of shops. This overall decline in the number of shops is likely to reflect the trend towards fewer, larger retail outlets.

It is clear that new developments such as the Quadrant Centre and Parc Tawe in the city centre and the Fforestfach Retail Park in SA5 have attracted new shops, to the disadvantage of surrounding areas. Smaller town and suburban centres situated around the city centre have experienced the most change, both positive and negative, noting Gorseinon and Pontarddulais in example. Other smaller hierarchical centres exhibit general decline in the number of shops, noting Gowerton and Manselton in particular.

There has been a general increase in the number of large foodstores. Where these increases occur, they have are usually located close to major roads, in areas of high population density, and in existing suburban centres. Where losses are visible, they are frequently located adjacent to a sector with a new large foodstore.

Of the six postcode districts only three, central Swansea, western Swansea, and northern Swansea (SA1, SA2 and SA5 respectively) have demonstrated growth in the net total number of retail warehouses. Of these three postcode districts, central (SA1) and Northern Swansea (SA5) have gained retail parks, namely the Parc Tawe and Fforestfach retail parks, justifying this rise, although SA2 (west Swansea) has not acquired any such parks, suggesting that retail warehouses in the district tend to be free-standing (Bromley and Thomas, 1989b; Thomas and Bromley, 1987). However, within each district, there are distinct trends. Patterns in the numbers and locations of retail warehouses follow similar trends to large foodstores. It is clear that very good road access is a key factor in the location decision of new retail warehouses. Having said this, their location is not necessarily situated close to areas of high population density or in existing suburban centres. The areas which have observed the most substantial increases in the number of retail warehouses are those areas which comprise of purpose built buildings and facilities, such as those areas around Gorseinon at Trafle and Penllergaer, and at Parc Tawe in the city centre.

With the exception of north east Swansea (SA6), all six studied postcode districts have experienced increases in the number of showrooms, although SA6 has lost only one such premise. The location patterns of showrooms are similar in many respects to those of retail warehouses and large foodstores, in that they tend to locate in existing urban areas with good transport links. However, whilst retail warehouses and large foodstores are shifting towards specially developed sites, showrooms are locating in existing sites in existing urban areas with greater floorspace. This is especially apparent at Port Tennant, Landore, Gorseinon, Morriston and the Fforestfach Retail Park.

Net increases in the number of licensed and entertainment premises are recorded in all postcode districts, with the exception of SA1 (central Swansea) where a decrease is observed. In all districts, however, these changes are spread geographically with no strong spatial patterns. Although there are no distinct large scale geographical trends, licensed and entertainment premises seem to locate adjacent to road junctions where customer access and visibility is optimised.

Areas of increased licensed and entertainment premises are visible in Gorseinon, Fforestfach, Manselton and the city centre. In contrast, decreases are recorded at Pontarddulais, Three Crosses, St Thomas, Cadle, and dotted around Manselton and the city centre. Noting this, it seems that where one area has shown signs of increased licensed and entertainment premises, neighbouring areas demonstrate general decreases. These patterns are particularly evident around Fforestfach and Cadle, Manselton and in various areas within the city centre.

The number of banks and financial outlets has reduced in all postcode districts, with the exception of western Swansea, SA2, where two outlets have opened over the ten year study period.

Although spatial changes in the number of banks and financial outlets follow no significant pattern, where decreases occur, there are often increases in close geographical proximity. This is especially visible in the city centre and around Morriston and Llansamlet. There is evidence of clustering around Llansamlet, in the Enterprise Park, with two neighbouring postcode sectors gaining three outlets each. The most significant losses are recorded at Penllergaer, Clydach, Birchgrove and dotted around Landore.

Having described the patterns of change by individual commercial category, the chapter then went on to examine change in the total number of commercial hereditaments by postcode district.

While there has been a spatially varied transformation in the majority of postcode districts, central Swansea, SA1 has exhibited the most diverse changes. The number of retail warehouses in the area over the ten year study period has increased dramatically; their location predominantly situated in the Parc Tawe retail park, bordering the city centre on an off-centre site. Whilst further increases in commercial premises are visible along Wind Street and Oxford Street, distinct losses are evident north of High Street and along the Walter and St Helens Roads. The majority of these losses are in the shop category.

The majority of changes in western Swansea (SA2) have been negative and have been focused around the Sketty, Uplands and Brynmill areas in the east of the district. The majority of the changes in this district are focused on or nearby major roadways. In SA4, positive changes in the total number of commercial hereditaments are visible at Gorseinon and Penllergaer. These changes surround the A4240. In contrast, negative changes are recorded at Three Crosses and Pontarddulais.

The majority of the changes in SA5 have been focused at the south of the district. More precisely, the patterns of change tend to follow the main arterial routes, namely the A483 and the A484. In this district, it is clear that areas of growth such as at the Fforestfach Retail Park can have detrimental impacts on surrounding areas. The significant decline in the total number of commercial hereditaments in Manselton and at Cadle provides evidence of this. Despite the lack of a major transport link, Felindre in the north shows evidence of a growth in the number of commercial hereditaments.

Changes in SA6, north-east Swansea and SA7, eastern Swansea, also show a mix of positive and negative changes. The main areas of growth are within the Swansea Enterprise Park situated in both these postcode districts and in the adjacent suburban town centre of Morriston, located to the west of the Enterprise Park in SA6.

5 | Assessing the value of the rates data & GIS approach to retail change

5.1 | Introduction

This research draws upon a multi-method research approach to evaluate the usefulness of business rates data and GIS to monitor commercial change in urban Swansea. Having quantitatively identified the patterns of retail change by using rates data integrated into a GIS in the previous chapter, this chapter begins to assess the usefulness of this information with regard to recognized retail changes in urban Swansea. The chapter draws on existing academic literature, governmental publications encompassing retail change, and interviews with various key informants, all of which provide details on the changing commercial landscape of urban Swansea.

Beginning by providing a summary of the quantitative findings of the previous chapter, and by relating them to patterns of change recognized in existing academic literature, the chapter gradually builds up a strong assessment of using rates data and GIS to monitor commercial change. Following this, the inclusion and assessment of government produced literature will provide details on the planning practices and legislation which all influence commercial spatial changes in urban Swansea. In strengthening this assessment, the chapter then incorporates findings from interviews with experts in key fields encompassing commercial change. Informants include senior town planners, research officers and academics, all of whom are key actors in the subject of commercial retail change, and are all based in Swansea. Finally, a chapter conclusion is provided to summarise the key findings.

5.2 | An assessment in the context of academic and government literature

5.2.1 | Academic Literature

There is a wealth of literature concerning retail change in urban Swansea. Relating the findings of this study to known patterns of retail change written in existing literature will justify the research and will allow an assessment of the

accuracy and viability of the business rates and GIS methodology used in the research when looking at commercial retail change in the study area.

A preliminary finding of the research was that the total number of commercial hereditaments has declined in all six geographical districts of the study area. The closure of stores, noting in particular those with smaller floorspace, is a pattern widely recognised in the literature, not only in Swansea, but nationally. Bromley and Thomas (1993; 5) state that '[r]etailers have both expanded their existing markets and developed new ones. At the same time, the development of single stores selling a wide range of goods...has been equally apparent' during the changing patterns in the business structure of retailing since the late 1980s.

Replicating the decline in the total number of commercial outlets, there has been a decrease in the total number of shops in the study area. This pattern is likely to reflect the trend towards fewer, larger retail stores as described above. Despite these tendencies, it is inevitable that new, purpose-built retail developments such as the Quadrant Centre in the city centre and the Fforestfach Retail Park are attracting new shops. The patterns of change of retail warehouses, large foodstores and showrooms follow similar patterns. There is a tendency for such retail outlets to locate in those areas which are close to, or on the junction of, a major road, catering predominantly for the car-borne shopper (Thomas and Bromley, 1987; 1993). It is generally noted that such outlets have a particular appeal to such shoppers drawn from a wide trade area; their impact therefore is diffuse, and is likely to affect those retail centres within their spheres of influence (Sparks, 1987; Thomas and Bromley, 1987; 1993; Thomas, 1989).

Despite this general pattern of commercial decline in the study area, there are a number of neighbourhoods within the region which exhibit continued growth in commercial strength, and in contrast, there are areas which show evidence of a decline. For the most part, the negative changes in the smaller traditional retail centres have been associated with the steady erosion of the grocery shopping status of the traditional elements of the shopping hierarchy (Thomas and

Bromley, 1995), in favour of the larger, single store selling a wide range of goods, usually located on out-of-centre sites. The development of superstores in Swansea during the 1980s and 1990s has resulted in a weakening of the grocery shopping function throughout the traditional centres of the city (Thomas and Bromley, 1993). This development will be examined in more detail below.

The increasing strength of the larger traditional centre as demonstrated by evidence in this research, most notably in this case Gorseinon, Morriston and Fforestfach, is not a recognized pattern of retail change in urban Swansea. It is generally accepted that centres such as these are failing to achieve a secure functional status in the changing shopping environment. However, Thomas and Bromley (1995; 434) state that 'adjustments to the process of retail change will not involve a drastically negative effect upon the traditional shopping centres. In densely populated areas which contain high concentrations of households lacking access to a car, for example, the local facilities are likely to survive at a reduced but reasonable level'. They go on to suggest that it is in locations such as these that new forms of store are focusing their developments. This is especially visible in Morriston, where there has been an increase in the number of showrooms. In addition to this, Dawson (1983) and Thomas (1989) suggest that the commercial pressures for decentralisation have been reconciled with the hierarchical principle of retail centres by the establishment of new 'focused centres', usually organised around a large foodstore which acts as a commercial 'anchor'.

The increase in the number of large foodstores in urban Swansea relates to patterns generally acknowledged in the related literature. In Swansea, such stores are locating on major roads and their junctions, in areas of high population density and usually within existing suburban centres. These locational trends are also highlighted in a number of studies, all of which state the combined advantages of convenience (usually comprising of ease of access and parking, long trading hours and the opportunities for bulk purchasing) is the main potential attraction for these new large stores (Bromley and Thomas, 1988; Thomas, 1989; Thomas and Bromley, 1993).

Other areas showing increased commercial strength are the purpose-built retail parks, namely Parc Tawe adjacent to the city centre, the Fforestfach Retail Park, and the Swansea Enterprise Zone, all of which are located in off-centre or out-of-centre sites. The patterns of decentralisation and the tendencies for stores to concentrate in these purpose-built parks are strongly reinforced by evidence provided in the literature. Thomas (1989; 208) for example, notes the Enterprise Zone as 'reaching the scale of a "hybrid centre" of near to regional status'. Revisions of national planning policy guidance initiated by government support for the development of superstores and retail parks led to the relaxation of planning constraints in force until the late 1970s (Thomas, 1989), which in Swansea, led to the emergence of a number of significant out-of-centre shopping areas. A further number of articles (Bromley and Rees, 1988; Bromley and Thomas, 1988; Sparks, 1987; Thomas and Bromley, 1986; 1993; Thomas, 1989) focus on the development of these out-of-town retail parks in Swansea.

A pattern generally overlooked in the literature is the shifting of licensed and entertainment premises towards the more accessible locations, usually within the purpose built retail parks. This trend is especially apparent in Parc Tawe, where the findings of this research are equivalent to those acknowledged by Tallon *et al.* (2005), who states the development consists of a superstore, a number of retail warehouses and a leisure complex consisting of a bowling alley, a cinema, restaurants and a tropical plant hothouse.

Additional spatial patterns highlighted from the GIS analysis indicate that those areas demonstrating increased commercial strength are often bordered by an area showing patterns of decline. This is especially apparent in those areas adjacent to the purpose built commercial parks. The development of the Swansea Enterprise Zone retail park was associated with the relocation of four stores formerly peripheral to the city centre and the relocation or contraction of five others from other parts of the city (Thomas and Bromley, 1993). Relocations and contractions in this sense totalled nearly 40 per cent of the retail floorspace of the retail park (Thomas and Bromley, 1987; 1993). Evidence of this movement is visible in the city centre along High Street, which neighbours the Parc Tawe retail park. It is of general acceptance in the

literature that shoppers (predominantly car-borne) to such parks are drawn from a wide trade area, meaning the impact of the retail parks are diffuse and are likely to affect the town and district centres within their spheres of influence (Thomas and Bromley, 1993; 140).

The patterns of commercial change in the city centre (SA1) exhibited in chapter four of this research are also well documented in the academic literature. The patterns of spatial redistribution towards the Quadrant Centre in the city centre are similar to the patterns recognized by Thomas (1989; 211) who suggests that the decline of High Street retail premises forming a north-eastern arm of the central business district, is more likely to reflect the shift in orientation of the commercial centre of the city south-westward following the development of the Quadrant.

Although the findings of this research have been substantiated in the context of academic research on the Swansea area, it is also relevant to note that the trends identified follow patterns of change observed at national scales. The patterns of decline and decentralisation are widely documented in the literature (Fernie, 1998; Guy, 1998a; Hallsworth, 1994; Schiller, 1986; 1987; Thomas, 1989), most notably through the identification of the waves of retail decentralisation. Similarly, the retailer's predilection for locating in those areas of high population density and adjacent to major roads is also widely recognised.

5.2.2 | **Government Literature**

Section 4.3 of Swansea's Unitary Development Plan (City and County of Swansea, 2003) highlights retailing as a major industry within the county, suggesting that it provides widespread employment opportunities and underpins commercial activity within the city, district and local shopping centres. Noting the importance of the retail industry, therefore, there are many government produced documents which are aimed at managing, legislating and regulating the patterns of retail change.

The literature produced by central government (DoE, 1996) accepts the town centre to be the focus of retail commercial activity, and there is a general onus to sustain and enhance the vitality and viability of existing town centres. Similarly, policy HC11 developed by the City and County of Swansea regarding the city centre states that the highest priority is placed on the refurbishment, expansion and development of retail outlets that maintain or enhance the vitality, attractiveness, or viability of Swansea city centre as a regional shopping destination (City and County of Swansea, 2003; 92). Despite the increase in number of certain commercial categories (retail warehouses, large foodstores and showrooms) along with the national and localised policies to enhance town centre retailing, the findings from this research indicate a pattern of total net commercial decline in the SA1 district, within which the town centre is located.

Irrespective of the decreasing commercial strength of the central Swansea district, other high order traditional centres, most notably Gorseinon (SA4) and Morriston (SA5), are increasing in commercial strength, perhaps because of the viability produced from transport links and the resulting ease of access for potential customers. Interestingly, the decline of one centre to the benefit of others is noted in Planning Policy Wales (Welsh Assembly Government, 2002; 110), which states;

> '[i]n some situations, it may be necessary to manage the decline in relative importance of a centre as other centres expand. Dealing with change may mean redefining boundaries of centres or identifying acceptable changes of use'.

The decline of commercial premises in SA1 may not be a decline *per se*, but may instead be an evolution of retail facilities in the district. The government objectives for town centres suggest that policies should encourage a diversity of uses in town centres. Mixed use developments are encouraged by both central (DoE, 1996; Welsh Assembly Government, 2002) and local government (City and County of Swansea, 2003) to promote vitality as well as reducing the need to travel to visit a range of facilities. Small stores in the city centre could be

closing in favour of larger, mixed use developments, or for single stores selling a more diverse range of goods.

The changing use of commercial categories for more diverse uses is visible in the findings of this research. Despite the fall in the number of shops in the central Swansea district (SA1), there has been a growth of retail warehouses, showrooms, licensed and entertainment premises in other areas and there is evidence showing a minor redistribution in the location of banks and financial outlets in this district. Such developments are actively encouraged in government literature. The Welsh Assembly Government (2002; 111) suggests that secondary retail frontages such as these in town centres provide important services and local planning authorities should encourage their retention in town centres.

As well as the increasing strength of these higher order centres in the hierarchy, there has been a continuing growth in strength of the purpose built commercial retail parks. It is well noted in the government literature that the expansion of such developments could prejudice aspirations for the city centre and district shopping centres (City and County of Swansea, 2003). The intensification of retailing within such parks is seen as undesirable and as 'a potentially serious threat to the implication of other policies aimed at promoting new retail investments within the city centre and established district shopping centres' (City and County of Swansea, 2003; 95). Although this research does not include direct evidence of the effect these purpose-built commercial parks are having on surrounding areas, it is clear that geographically adjacent centres are experiencing patterns of decline in the total number of commercial premises. These patterns are especially visible in Llansamlet which borders the Enterprise Park, at Cadle, immediately north of the Fforestfach Retail Park, and to the west of Parc Tawe, predominantly along High Street, just north of the city centre. These patterns challenge the objectives set out in all of the government literature, the majority of which suggesting that 'the scale, type, and location of out-of-centre retail developments should not be such as to be likely to undermine the vitality, attractiveness and viability of those town centres that

would otherwise serve the community well' (Welsh Assembly Government, 2002; 116).

Similar to the objectives highlighted in both central and local government documents, many new store developments are locating in those areas where there is good access to the national road network (DoE, 1996), a large customer base (Welsh Assembly Government, 2002) and where general attractiveness of the shopping environment is greatest (City and County of Swansea, 2003). This is especially apparent in the location of retail warehouses and showrooms. Consistent with central and Welsh Assembly Government policies, large foodstores are locating towards edge-of-centre sites. Such stores act as commercial 'anchors', and are also essential for the less mobile members of the community. The PPG6 (town centres and retail developments) document (DoE, 1996) suggests that large foodstores with parking facilities on such sites enable car-borne shoppers to walk into the centre for other business, and shoppers who arrive by other means of transport to the town may walk to the store. In this sense, the new store is likely to help the economic strength of the existing centre. Evidence from chapter four illustrates that new stores locating in such areas are apparent in Landore, Glase, Hafod and Morriston.

Following the assessment of the research findings using academic and government literature, it is clear that the majority of the trends observed are corroborated by the patterns illustrated in academic literature, and to the planning objectives and policies devised by central and local government. In order to gain an understanding of the usefulness of the methodology, further information is required. Interviews with key informants will provide an assessment of the usefulness of using rates data and GIS to monitor retail change, and will indicate the potential values of such research techniques to local government authorities and to academics alike.

5.3 | **The assessments of the key informants**

To further reinforce the qualitative assessment of the usefulness of business rates and GIS to monitor retail change, a number of interviews with key

informants in various related fields were performed. In order to gain a balanced overview of the effectiveness of this methodology, the interviews were semi-structured. This will set the discussions within set parameters, but will also allow them to take a fluid, conversational form which will vary according to the experiences and understanding of the informant.

Four interviews were performed (see appendix A3). The first was a discussion with Dr Colin Thomas, a senior lecturer in urban geography at the University of Wales, Swansea. Second was with David Williams, a senior town planner at the City and County of Swansea. The third key informant was Nick Mills, a research manager within the Research and Information Team at the City and County of Swansea, and has been the authority's key officer concerned with retail processes and change over the past thirty years. The fourth and last person to be interviewed was Dr Jamie Smith is principal research officer, also of the Research and Information Team at the City and County of Swansea.

5.3.1 | **GIS and the local authority**

The informants were initially asked a number of questions regarding the use of GIS in Swansea, either within the local authority or other organisations, to monitor changes in retail activity. Evidence from the discussions suggests that GIS continues to be a widely used tool for monitoring retail change in both an academic and local authority environment, and its use is continually expanding with the increasing technological capabilities of the systems. GIS within the local authority is applied at various levels. Nick Mills, the council's research manager, highlighted varying levels of GIS use within the City and County of Swansea;

> 'We [the local authority] are using it in relation to survey information that's been collected. We've used it in the past to explore the origins of shoppers to specific units. We've used it more recently in the development of accessibility measurement tools. We know that retailers are using it, perhaps more effectively in terms of better quality of information.'
>
> *Nick Mills*

From a town planning perspective, David Williams suggests that GIS is used within the local authority as a '...tool in terms of mapping', although he states the resources no longer exist for physically recording the changing location of retail locations over time. Instead, the planning department records the application for developments rather than regularly recording the spatial locations of existing retail outlets. Although it seems GIS analysis systems within the local authority tend to be bespoke to the requirements of a specific project, there are plans within e-government initiatives to expand the use of GIS and their associated attribute data across all departments of the authority.

It is evident that the City and County of Swansea are spending large amounts of money on developing the new e-government system of resources. This system would essentially allow all the data held within the various departments of the authority to become easily accessible to any member of staff who wishes to utilise it. The program has been in place in Swansea since December and

> '...it's going to be revolutionary...in terms of [information computer technology] for information collection, retrieval, analysis and all that to help support decision making... [w]e're hopeful that GIS will feature in that.'
>
> *Nick Mills*

All three informants from the local authority mentioned the positive effects the new e-government initiatives would have on data collection and analysis and that such a program would make 'a much more sophisticated databank of information available to everybody' (Dr Jamie Smith). Illustrating this point further, it was suggested by the senior town planner, David Williams, that

> 'At the minute, the data tends to be siloed into different boxes...and you're not always aware of what another team or department might hold and *vice-versa*, so anything that gives you instant access to data like that is going to become a tool that we [the local authority] can use. So I think the greater awareness is where the greatest

> capabilities come from information. The last thing you want to do is gather the same information twice.'
>
> *David Williams*

5.3.2 | **GIS and retail change**

An additional outcome gathered from the discussions was that the patterns of change highlighted by the findings of this research represent the continuing trends of retail change in Greater Swansea observed since the 1980s. This correlates directly to the evidence gathered from both government and academic literature, and suggests at this stage that business rates data are a viable option and a sound database for monitoring retail change.

As an alternative method of monitoring retail change, Dr Colin Thomas referred to the use of GOAD plans which are highly detailed digital maps produced every two years for recording retail land use in major urban centres. Although he knew such plans are widely used within academia, he was unsure of their usage within a local authority environment, suggesting that councils may prefer to use some form of in-house data as it could be produced on demand, as and when required. Extending from this, Dr Jamie Smith states;

> '...a lot of what we do is in response to proposals for development and it throws up all sorts of specific problems, so there's no sort of standardised way in which we can say we use GIS for retail change, but a lot of it is just creative use of spatial information to try and take apart somebody else's argument.'

Although GIS has been used within the local authority for sometime, and its use is becoming more sophisticated, there was general consensus that its application is still 'pretty elementary' (Nick Mills) in terms of the planning carried out when assessing those areas which might be of low retail provision.

5.3.3 | GIS representations of space

In order to evaluate the efficacy of monitoring retail change in a GIS, the informants were questioned on their opinions of such a method. The informants were asked a number of questions regarding their opinions on three map examples (appendix A3). This would allow an evaluation of the visual representations of geographical space on a two-dimensional surface. The first example was a map of the study area, and was used to illustrate the postcode districts and sectors to the informants. Example two illustrated the net unit change in the total number of commercial outlets, and also included an inset map of the city centre. Example three illustrated percentage change in the total number of commercial outlets in SA1, and example four was a smaller scale map of the entire study area, including two inset maps.

The use of postcode sectors to illustrate the changes in retail activity received mixed responses from the informants. As the local authority typically utilise purpose boundaries such as wards or enumeration districts, the postcode sector mapping technique received negative responses from the local authority informants. Having stated this, there was a general agreement that the postcode boundaries could provide detail for a very wide ranging study, looking for generalisations of patterns rather than specific information 'where you could amalgamate a few postal areas together to give a wider overview' (David Williams).

The informants were asked about the effectiveness of the maps at accurately portraying geographical reality and the patterns of retail change throughout Swansea. A fundamental point stated by Dr Jamie Smith was that the maps were 'certainly different, and we [the local authority] are used to looking at that sort of [business rates] information in a tabular form'. Following this, it was suggested that the methodological approach may provide an alternative technique for assessing business rates data, as it provides a visual, geographical aspect to tabular data which the local authority have overlooked to date;

> 'It's a resource we haven't tapped into so it's definitely something we should explore...Sometimes when you see something put in front of you, you see the potential and the next time around you might think maybe we could employ that approach.'
>
> *Dr Jamie Smith*

Although the concept of displaying business rates as geographical information rather than tabular data was accepted by the informants, many considerations were discussed relating to the visual presentation of the maps. A preliminary point of discussion with all informants was that the maps use a complicated key and the use of many colours lowered the immediate legibility of the thematic information. This point is noted by Nick Mills;

> 'You're using quite a complex key there, there's a lot of different colours there. Ideally, you'd need to try and distil that down to about five. The simpler the colour range, the easier the mind can assimilate that.'
>
> *Nick Mills*

Suggestions were made to reduce the intricacy of the map legends. Dr Colin Thomas suggested that the use of a number of different colours rather than shades of two colours might allow the reader to read the spatial information more quickly. Additionally, Dr Jamie Smith suggested that legibility might be increased by

> '...a very simple scale where you've just got pluses and minuses; net gains and losses, just to see where the shift in, in particularly in the city centre has been...because that's the main area of interest and where the best NDR data exists. That would be very interesting and I'd like to see that.'
>
> *Dr Jamie Smith*

Further suggestions focused on adding extra recognisable geographical features. Dr Jamie Smith mentioned there could be more detail included to

increase the visual impact of the maps including the addition of more street information, road names, the River Tawe. The senior planner, David Williams stated that geographically significant features such as the coastline or the River Tawe would increase the visual impact of the maps and allow increased orientation around the maps.

In order to gauge the usefulness and effectiveness of the map styles, the informants were asked which of the three examples would provide the most useful detail for examining retail change over time. Initially, the scale problems were highlighted, as there are inevitable difficulties of retaining both precision and clarity in large scale maps. Evidence from the discussions suggested that example two answered the scale problem most effectively, as the inset plan could concentrate on the areas of most importance;

> 'I think the problem of scale has been solved there [points to inset map in example 2] in my opinion. A lot of the work we do is fairly localised and you need the flexibility and the ability for the maps to fit the purpose.'
>
> *Dr Jamie Smith*

> 'This one [example 2] reads much better than that one [example 3] as you have some additional information there related to the inset which is zoomed into the city centre...My brain can fairly quickly assimilate that one. I like this sort of inset plan, because what you're doing there is you've got a GIS output that's two-dimensional, but the GIS has that capability of flexibility and you can actually zoom into the detail which you've demonstrated here.'
>
> *Nick Mills*

> 'That's more interesting to me [example 2] because I know the geography and can pick things out...so that's beginning to tell me a story already, whereas that [example 3] is more abstract. Really it depends what your study is looking at.'
>
> *David Williams*

> 'The problem of scale has been overcome to an extent, but it depends on how much other address information you've got. If you've only got the postcode sector, then you're largely constrained to this type of style...The overview is useful, but far more useful is to look at the sort of, established shopping centres, for example the local district neighbourhoods and in particularly town and city centres where you can actually see the street layers.'
>
> *Dr Jamie Smith*

To establish the effectiveness of the maps in assisting the interpretation of retail change over time, discussions were then based on which of the maps styles illustrate such changes clearly and accurately. It was generally accepted that map styles should be produced for a certain purpose and 'depending on what your perspective is, your requirement in terms of visual output can vary quite significantly' (Nick Mills). Although it was accepted that any map should be produced to fit a specific purpose, there were contradictions in choice between the local authority informants, possibly reflecting their perspective towards research of this nature and their information requirements. Nick Mills favoured example two, unit change, as 'you can look at it very quickly and pick up the overall picture than with the other one [example 3]'. David Williams, the senior planner, suggested the percentage change map, example three, would be more useful to his line of work, as they would illustrate the intensity of retail change in individual postcode sectors rather than the net change in the number of retail outlets. Dr Jamie Smith, the local authorities' Principal Research Officer, suggested that maps of this kind would be useful if produced for a specific purpose rather than as a general indicator of retail change, as they may be adapted to suit a particular objective.

Although it was generally accepted that the methodology and the resulting maps may act as one of many viable options for monitoring retail activity in Swansea, the local authority informants suggested operating the maps within an electronic format, rather than on a two-dimensional sheet as Nick Mills and Jamie Smith explain;

'If you were trying to show the broad distribution [of retail activity] in SA1 then this [methodology] has certainly done that. If it's a GIS based system, then you should have the potential to put it under the microscope and to zoom and upgrade the map layer so that you can end up in an urban area, something like a 1:2500 plus scale. You can't get much more detailed than that...What I would have liked to have seen here is an interactive basis where you've got an intelligent layer, and by clicking on Parc Tawe for example, we could begin to drill down and we could see an occupier layout plan, and then by clicking on the occupier, we could get into the background information of the floorspace of that store, how long it had been occupied, what's the growth, and perhaps even a potential link there with imagery.'

Nick Mills

'I think it would be more effective to see them in the GIS environment rather than on paper, because that's the way we're used to working. If you can use the basic GIS functionality of zoom and pan etcetera, and searching by street and other basics that we've become accustomed to, it would become more powerful than seeing it as a snapshot.'

Dr Jamie Smith

Following the GIS based questions, the informants were asked a number of questions relating to business rates and their application to monitoring retail change in urban Swansea. An initial finding was that business rates data would be easily and freely available to all of the informants, and would be particularly useful if available in a computerised format which could be amalgamated with other electronic datasets for use within a GIS.

It was mentioned by the informants that business rates data could act as one of several effective tools for monitoring changes in retail activity. Dr Colin Thomas suggested that business rates data could act as an effective tool to monitor retail change, as well as being effective in monitoring other elements recorded through business rates such as offices or industrial premises. Adding to this,

Nick Mills revealed that business rates data accompanied with an effective GIS is 'probably actually one of the keys for picking up on [commercial] changes provided you're happy that its factual base is as tight as it could be'. Furthermore, there was a general agreement amongst the informants that the uniformity of the recording system used for business rates 'could provide the constancy required for sound analysis' (Dr Colin Thomas). This is reinforced by Dr Jamie Smith;

> 'I think it's essential if you're looking to benchmark in the way that you have here and look at [retail] change over set periods of time. If you've got changes in recording standards and changes in classifications in the intervening time, it [the data] becomes virtually meaningless....It's good that [business rates] are standardised across the UK in terms of the categories that they operate within, and the banding as well. So if you wanted to compare across areas, certainly across an area the size of ours [Swansea], then yes, it would be a good dataset I would have thought.'
>
> *Dr Jamie Smith*

The constant recording methods and the uniformity of the data classifications supplied in business rates data could provide a useful indicator of retail change when added to the existing datasets of retail activity used within the local authority and within existing academic research. Dr Colin Thomas mentioned the methodology and the subsequent maps are useful at a gross level, as a generalisation of retail change over a large spatial area. Dr Jamie Smith stated that the research approach could certainly be applied to the Research and Information Departments existing GIS, especially if the data could be modified and manipulated to suit the purpose of the related project. To further support the idea of using this methodology for monitoring changes in retail activity, the informants were asked of any problems which may reduce their effectiveness of the results. In response to this, Dr Jamie Smith stated;

> 'Not as far as I'm aware. They're fairly tight set, their collection methods are quite favourable and the accuracy is about 96 to 99

> percent in terms of whether their coverage is comprehensive...I think it's fairly solid.'
>
> *Dr Jamie Smith*

This section has established and confirmed the viability of using business rates for monitoring changes in retail activity. Although as yet unavailable in a GIS compatible electronic format, the data can be easily added to existing datasets. The accuracy of the data and the uniformity of the recording system over time would provide a stable database and would act as an alternative means of monitoring retail change over a wide area.

5.4 | **Chapter summary**

This chapter has assessed both the effectiveness and usefulness of incorporating business rates data into a GIS to monitor retail changes over time. Using academic and government literature, the chapter has examined the effectiveness of using business rates and GIS in this way to monitor changes in retail activity and, through discussions with various key informants, has assessed the usefulness of such a methodology to a local authority organisation. The detailed conclusions from this approach are developed in the next chapter.

6 | Conclusions

6.1 | Introduction

This research set out to examine the usefulness of rates data input into a GIS for monitoring retail change in a large urban area, largely to compensate for the lack of quantitative analyses of retail change at the intra-urban scale. A review of the retail literature has revealed relatively little research which employs quantitative analyses for examining spatial change and exploratory interest surrounding the quantitative mapping of intra-urban retail change has been minimal when compared with the 'purely theoretical and highly descriptive work' (Simkin, 1990; 33) which dominates the existing literature. Quantitative research of this nature is further justified by the paucity of robust spatial analysis routines (Benoit and Clark, 1997) and the capacity for increasing the amount and extent of joint local authority and academic project work (Gill, 1999).

Through the combined use of business rates data and Ordnance Survey postcode data, changes in the spatial location of retail outlets between the years 1990 and 2000 were recorded, monitored and presented visually through a range of thematic maps. This allowed the examination of spatial retail activity at the intra-urban scale as well as an assessment of the extent to which patterns of decentralisation, agglomeration and dispersal are occurring within the study area. To assess both the usefulness and effectiveness of this methodology as an alternative means to monitoring retail change, the study then examined the research findings against recognized patterns of change highlighted in the existing literature and through evidence provided by key informants in various associated fields.

6.2 | Meeting the aims & objectives

This research was based on three principal aims. The first aim was to identify any spatial land use shifts of retail activity within the Swansea urban region using business rates data input into a GIS. Through this examination, a number of key findings were established. It was initially demonstrated that the total number of retail outlets is decreasing within the study area, despite growth in

the SA6 (North Western) and SA7 (Western Swansea) postcode districts. Despite this decline, the largest of the retail categories (retail warehouses, large foodstores and showrooms) all increased in total number over the ten year study period. Similarly, a few small town and suburban centres and the main purpose-built retail parks are growing in commercial strength, attracting new stores usually to the disadvantage of the geographically adjacent area. Such evidence suggests that these small town centres and retail parks are becoming dominated by large retail stores. It is also apparent that new stores are choosing to locate in those areas with good access to the national road network and within areas of high population density.

The changes can be summarised by a series of maps which record the net percentage increases and decreases in the number of commercial hereditaments over the ten year period 1990 to 2000. The map of SA1, Central Swansea (figure 6.1), indicates substantial increase in the retail park of Parc Tawe and the mixed fortunes of Swansea city centre. Figure 6.2 Shows decreases situated throughout Western Swansea (SA2). There are no retail parks in this district, and none of the suburban centres exhibit growth in the number of commercial premises. SA4 (North-western Swansea) reveals growth at the small town centres of Gorseinon, but otherwise a general pattern of decrease (figure 6.3). Change in SA5 (Northern Swansea) is dominated by growth at, and to the south of the Fforestfach Retail Park, and patterns of decline are evident to the north of this area at neighbouring Cadle (figure 6.4).

SA6, North-east Swansea (figure 6.5), and SA7, East Swansea (figure 6.6), both show patterns of increase at the Enterprise Park. The changes evident in SA6 also indicate growth at the suburban centre of Morriston. The analysis of changes allows comment on two of the four hypotheses outlined in the introduction to this thesis. Retail activity *is* showing patterns of relative decentralisation towards the out-of-town centres. Retail activity is, from the 1990 to 2000 data, becoming concentrated in retail parks, particularly at Fforestfach, the Enterprise park and to a lesser extent at Parc Tawe.

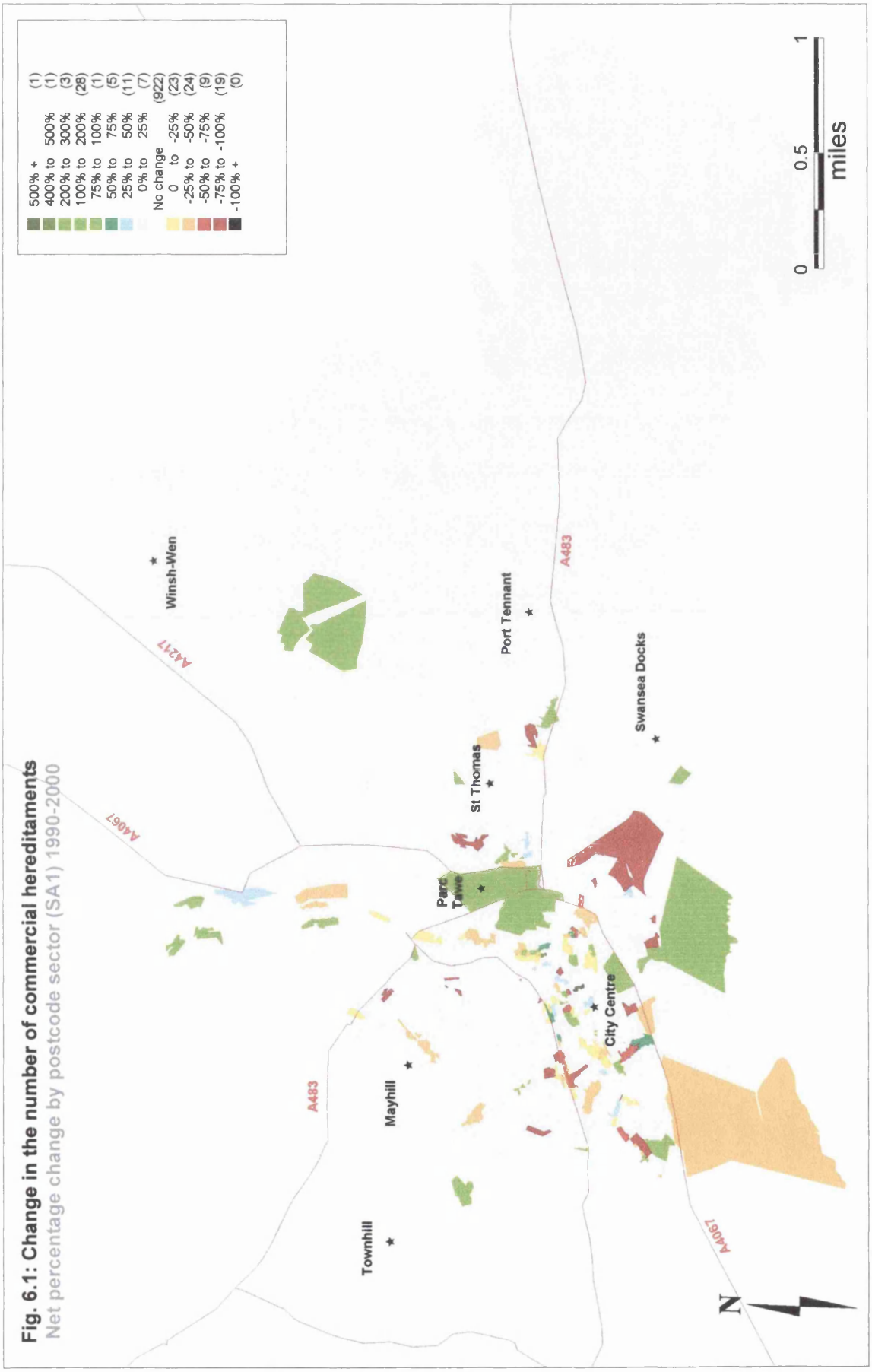


Fig. 6.1: Change in the number of commercial hereditaments
Net percentage change by postcode sector (SA1) 1990-2000

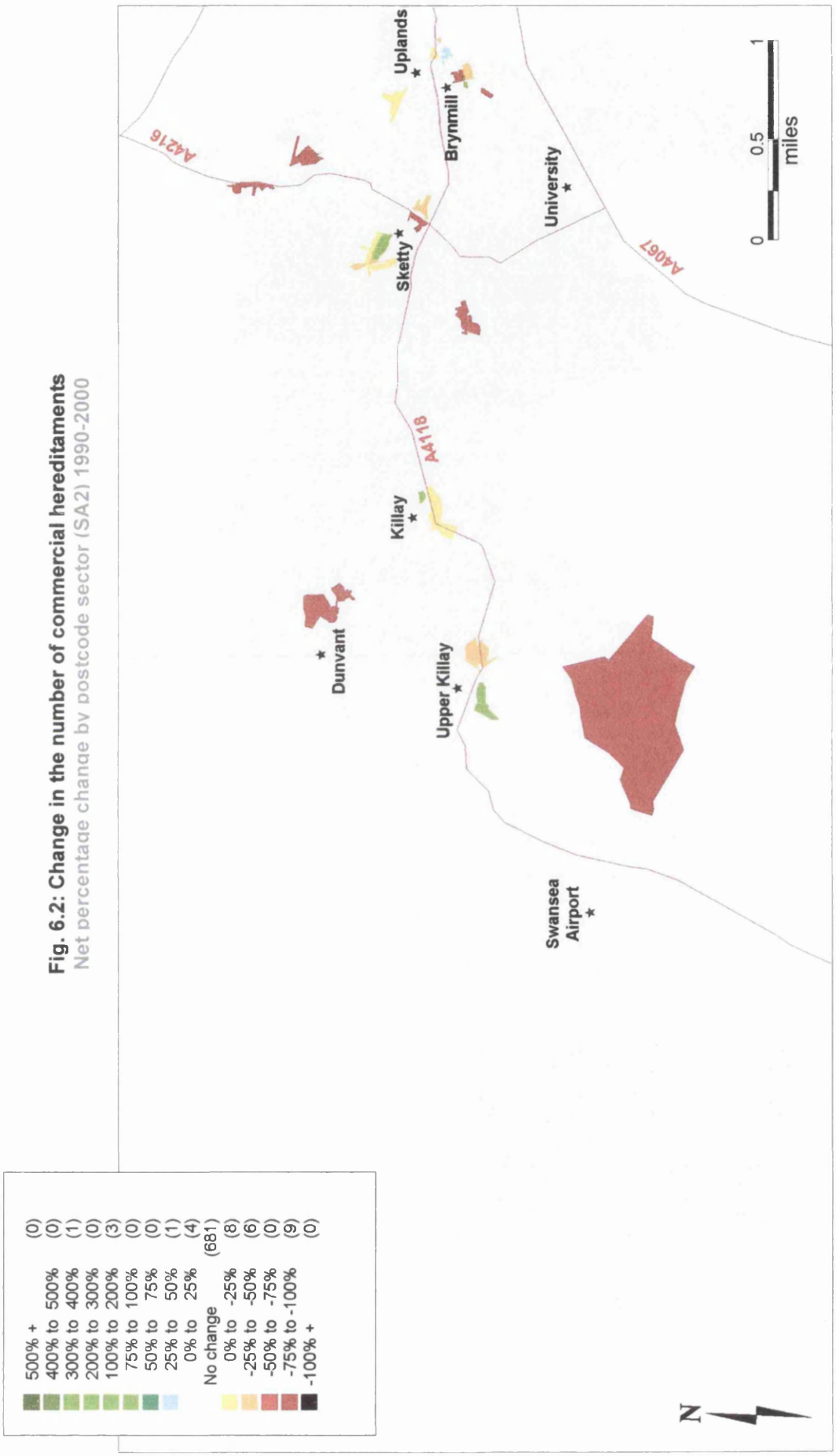


Fig. 6.2: Change in the number of commercial hereditaments
Net percentage change by postcode sector (SA2) 1990-2000

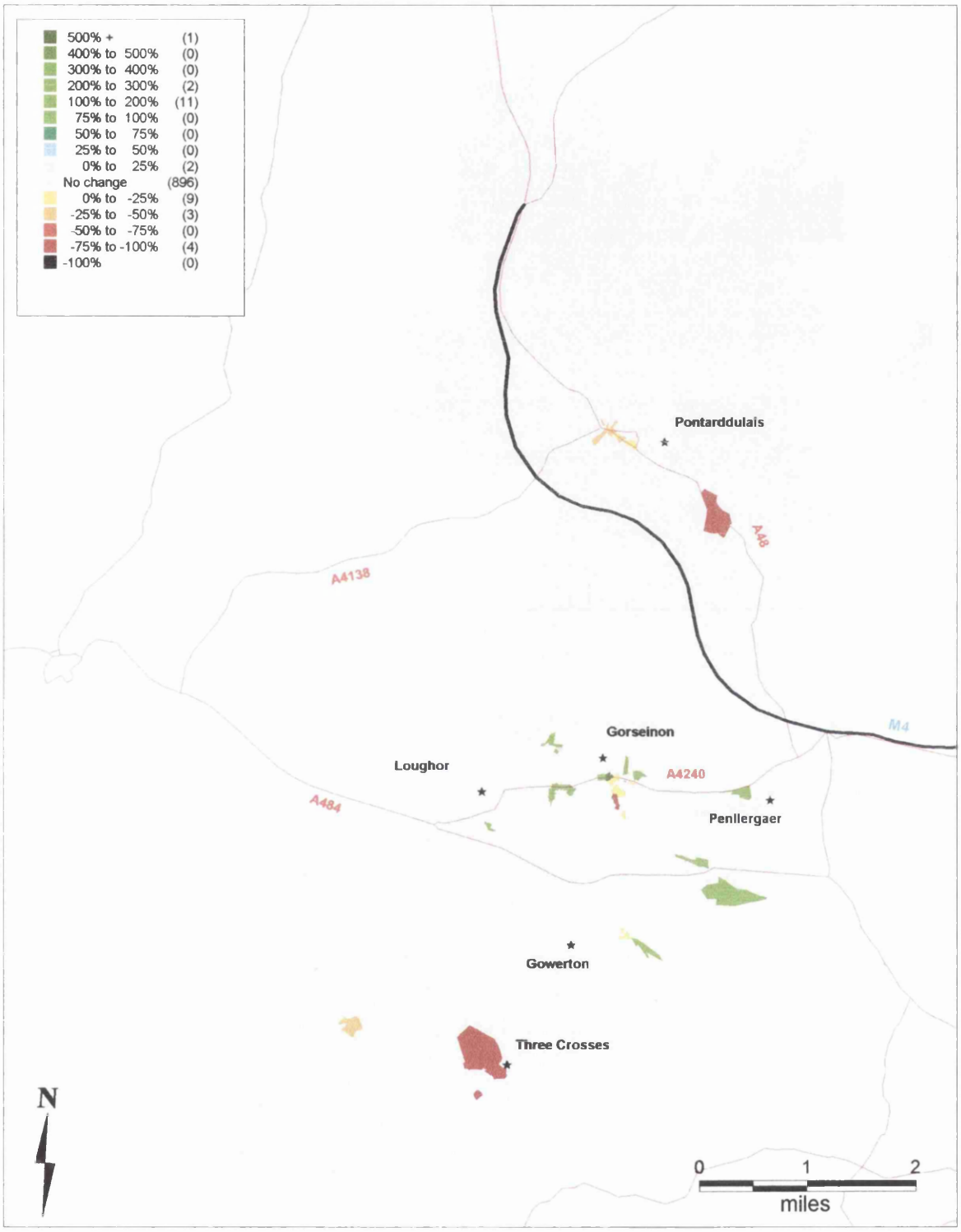


Fig. 6.3: Change in the number of commercial hereditaments
Net percentage change by postcode sector (SA4) 1990-2000

Fig. 6.4: Change in the number of commercial hereditaments
Net percentage change by postcode sector (SA5) 1990-2000

Fig. 6.5: Change in the number of commercial hereditaments
Net percentage change by postcode sector (SA6) 1990-2000

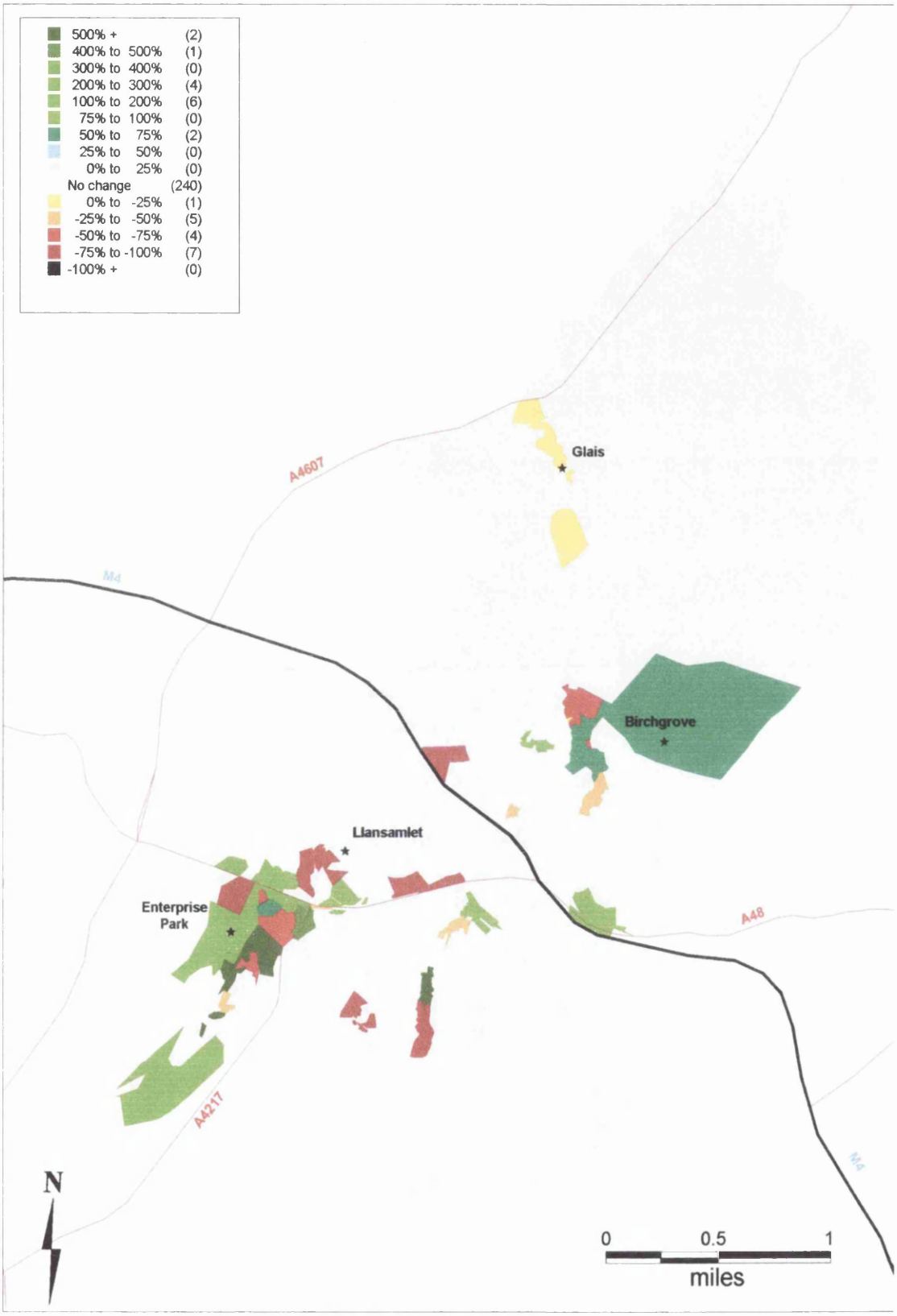


Fig. 6.6: Change in the number of commercial hereditaments
Net percentage change by postcode sector (SA7) 1990-2000

In extension of the first aim, the second aim of the research was to explore the effectiveness of this method through comparing the findings with the patterns of change highlighted in existing academic literature and through the legislative powers of government policy.

Relating the findings of this study to the known patterns of retail change in urban Swansea as described in existing academic literature has allowed an assessment of the accuracy and viability of using such a method to monitor retail change. The locational trends of many retail stores presented through evidence in this research reflect the recognized patterns of change as described in much of the existing academic literature. The decrease in the total number of shops as indicated in this study replicate the trends towards fewer, larger stores selling a wide range of goods, and the shift towards the purpose built, out-of-town retail centres with good transport access is a pattern illustrated by the literature.

The locational trends of the various types of retail stores presented in the GIS analysis are acknowledged trends. Large foodstores, retail warehouses, showrooms and licensed and entertainment premises are all shifting towards those locations which are adjacent to major roads and their junctions, close to areas of high population density which, the literature suggests, makes for the combined benefits of convenience for the shopper. Similarly, the patterns of decentralisation and the tendencies for such stores to concentrate in purpose-built parks are strongly reinforced by evidence provided in the literature.

Despite this substantiation, there are a number of developments which go wholly undocumented. Contradictory to the recognised spatial trends of the 1980s, it is revealed throughout chapter four that a few of the larger traditional centres such as Morriston and Gorseinon are increasing in commercial strength. This is inconsistent with the patterns of earlier change described in the existing literature (Dawson, 1983; Thomas, 1989), which suggests that centres such as these are failing to achieve a secure functional status in the changing shopping environment. Evidence from the literature also suggests that such

centres may survive at a reduced but reasonable level, where the introduction of a commercial 'anchor store' may have increased the viability for new stores.

The relation of most of the findings of this study to the recognised patterns of retail change illustrated in existing academic literature suggests that the use of business rates data inputted into a GIS provides an accurate, viable option for monitoring changes in retail activity. To further reinforce this, chapter five examined the findings in the context of the planning policies described within various government publications which may indicate the influence behind the patterns of retail change in urban Swansea

Regardless of the congruency of the patterns of change exhibited in this research and those recognised in existing literature, the patterns for the most part do not correspond to the legislative pressures provided in government planning directives. The main exception to this generalisation is the apparent strengthening of several small town and urban centres, such as Morriston, which has been an aim of government policy. The lack of correspondence with such policies is evident in the overall decline in the number of commercial outlets throughout the study area, despite policies to sustain and enhance the commercial viability of existing retail centres through maintaining, enhancing and developing retail outlets. Further inconsistencies are evident with the increasing strength of the purpose-built retail parks and, with the exception of Morriston, the decline of those areas in close geographical proximity to areas of escalating commercial intensity; both are regarded by local and national government policy as undesirable and detrimental to the future vitality and viability of those centres which would otherwise serve a community well.

Similar patterns of retail change in urban Swansea which contradict the policies and strategies set out by central government are evident in other parts of the study area. The increasing strength of the purpose-built retail park is regarded by government policy as undesirable and as a potential threat to the implications of other strategies aimed at promoting new retail investments within established shopping centres. Extending from this, those areas geographically adjacent to the expanding retail parks are generally decreasing in commercial

strength; a pattern which challenges the objectives set out in the government literature which proposes that such developments should not undermine the vitality, attractiveness and viability of those centres which would otherwise serve the community well.

The shifting of new store developments to those areas where there is good access to the national road network, a large customer base and where the general attractiveness of the shopping environment is greatest is a trend anticipated through evidence in government literature. Consistent with central and local government policy, larger retail outlets are locating towards edge-of-centre sites, which act as commercial anchors for their neighbouring traditional centre, as car-borne shoppers to that store may walk into the centre for other business, and conversely, shoppers to the town may visit the edge-of-town store, thus increasing the economic strength of the traditional centre.

To enhance the qualitative assessment and to substantiate the application of this methodology to the work of both the local authority and to academia in response to the third research aim, four interviews were performed with key informants. The expansion of GIS use within the local authority environment, coupled with the e-government initiatives to increase the access of information and enhancements in data provision and the integration of data formats has led to GIS becoming increasingly favoured for spatial analysis within local government departments. Such evidence suggests that new methods for monitoring retail change, especially those which minimise data collection practices would be well received by local government. To further demonstrate the usefulness of the methodology, the uniformity of the business rates recording system provides the consistency required for sound data analysis over time, and the mapping techniques provide an alternative perspective for analysing information usually displayed in tabular form.

Quantitatively representing retail change by this method may be performed through thematic maps of either net unit change or as statistical figures. Both techniques were regarded as practical by the informants, although their individual requirements for data representation led to contradictions in choice

between the two methods. Further evidence derived from the interviews suggests that the accuracy and practicality of thematic maps may be increased if such diagrams are produced to fit specific purposes and to satisfy particular requirements.

The data provided the informants with a new perspective for analysing information usually presented in tabular form. Suggestions made by the informants state that business rates data used in this way could act as an effective resource for monitoring changes in retail activity, and the uniformity provided in the recording system could provide the consistency required for sound analysis. Dr Colin Thomas suggested that the methodology has lots of potential and is a good innovation for monitoring changes in retailing. Adding to this, he stated that the problem with mapping urban change is that the maps can show the effects of change but will never show the causes. That, Dr Thomas suggested, takes a more analytical approach.

The evidence presented in chapter 5 offers support for the last two hypotheses presented in the introduction. The evidence provided through discussions with the key informants suggests that GIS *is* an efficient tool for monitoring and exploring spatial changes in commercial activity. Similarly, the evidence indicates that Business Rates may be used as an effective tool for monitoring changes in retail location. Despite the usefulness of both of these methods for monitoring changes in retail activity over time, there are a number of limitations with using Business Rates data in a GIS system.

6.3 | **Limitations and problems of using Business Rates data in a GIS**

Despite the successful execution of the three research aims, a number of limitations and problems were encountered. Although business rates data is available from the local authority, its accessibility in Swansea is limited to hard-copy format. Thus, the data had to be transferred to an electronic database for use within a GIS based system; a protracted process of duplication where human fault may cause erroneous information within the database.

Despite the use of postcode data being methodologically essential to this research, the use of such data in this way provoked mixed responses from the informants. Although there was general consensus that such boundary data could provide the essential elements for a spatially wide-ranging study, the local authority informants suggested that the use of purpose boundaries would increase the effectiveness of the information as it associates directly to the geographical spaces utilised by local government. Further problems regarding the use of postcode data encompassed the spatial distortion of information; where a large postcode sector existed adjacent to a smaller sector, the information becomes distorted so that the larger sector increases its visual dominance on the map.

Problems regarding map legibility exist at purely aesthetic levels and may be resolved through the addition of significant geographical features such as the River Tawe, the coastline and a more detailed display of the transport network. Furthermore, the use of a simpler map legend, utilising more than the gradients of two colours would enhance legibility and increase user assimilation.

6.4 | **Future research directions**

Options for the further development of this research exist at both methodological and practical levels. At the practical level, further development should address the availability of datasets and their viable implementation within a GIS system. At present, local authority data is provided at various levels and degrees of spatial and temporal resolution and from various sources partly reflecting the needs and requirements of the particular departments and organisations which utilise the data. The standardisation of the various dimensions of the data along with increasing their compatibility with other datasets and analysis techniques, including GIS, would contribute to the consistent analysis of retail change across both space and time. Further potential practical developments also exist in the representation of geographical space.

The method of presentation used within this research was only one of a possible number of techniques. The creative use of data visualisation methods coupled with the availability of the data in electronic formats – enabling ongoing, continuous monitoring – will increase the authorities understanding of retail change within their respective boundaries. Presenting geographical data could be manipulated and changed to suit the requirements of each individual project.

Whilst the methods developed through this research were successful in identifying any patterns of change, they do not necessarily reveal the causes. Instead, the findings may be used to highlight those geographical areas where further study is required, both by local government authorities and by academic researchers. Development at the methodological level should, therefore reflect both the academic and local government research trends towards integrated modelling of urban spatial activity. This research method may be amalgamated with various existing models of urban change, as well as with databases which include socio-economic, demographic and legislative information, the drivers which influence urban retail activity over time and space. This supplementary information may provide the more analytical basis for monitoring retail change as suggested by Dr Colin Thomas.

Another significant development in monitoring retail change using GIS at this level would be the implementation of electronic mapping rather than two-dimensional maps. This would enable the basic GIS elements of functionality, such as the ability to alter scale and visual concentration on more than one point. The provision of intelligent layers would provide the interactive basis for more in-depth analysis, and would allow for more detailed information at various scales, such as individual store floorspace, occupier information, financial records and links with imagery. Such developments reflect the local authorities approach to data analysis and presentation, thus increasing functionality and practicality for all users.

All these prospective developments rely on the effective implementation of the e-government initiatives. The increased accessibility of the required datasets, coupled with compatible data formats for use within GIS systems would

inevitably increase the feasibility of this research technique being utilised within local authority and academic departments. Furthermore, we may be entering a stage where large retail companies are proposing new developments on the grounds of their GIS capabilities and planning knowledge being at higher levels than those of the local authority. For these reasons, GIS-driven work such as this is not just possible and beneficial, but arguably, a democratic necessity.

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Appendix A2 | **Interview transcripts**

Transcript A

Name(s): Nick Mills (NM)
Dr Jamie Smith (JS)
Position(s): NM - Research Manager
JS - Principal Research Officer
Address: Research and Information Department, Second Floor Annexe, The Guildhall, Swansea, SA1 4PH
Date & Time: February 10th 2006. 3.30pm
Location: The Guildhall, Swansea

Transcript

CJT: 'Firstly, are you aware of GIS being used in Swansea, either in the council or in another organisation to monitor changes in retail activity?'

NM: 'Well, the answer's yes. We're using it certainly quite a lot for a variety of purposes. I suppose it depends at what level. We're using it in relation to survey information that's been collected. We've used it in the past to explore the origins of shoppers to specific units. We've used it more recently in the development of accessibility measurement tools. We know that the retailers are using it, and are perhaps using it more effectively in terms of better quality of information that they've got from the market research companies. We know that there are businesses out there that...I suppose you could say that the number one company in terms of the analysis of spatial information is probably Tesco's now'.

JS: 'Yes, I'd agree with that'.

NM: 'Number two is CACI. So, Jamie, if you want to add anything to that?'

JS: 'Well, a lot of what we do is in response to proposals for development and it throws up all sorts of specific problems, so there's no sort of standardised way

in which we can say we use GIS for retailing, but a lot of it is just creative use of spatial information to try and take apart somebody else's argument!'

NM: 'And it's still pretty elementary in terms of, sort of, the planning that we actually carry out when we're talking about an area which we consider might be of low provision. The other way we used to do it was with a compass and an estimate of the population working from within enumeration districts, but we can be far more sophisticated with that now, and it's the drive-time and walk-time which has replaced the radius, and it's the address point data that we're using to get the numbers of households. It's become a very effective tool; far, far quicker! We can relate it to bus routes as well, and that's where you've got the full power of GIS; where you actually begin to combine it with other information, and you can profile an area very quickly.'

CJT: 'So are there any plans to extend the use of GIS at all?'

NM: 'Incidentally, in what direction and where?'

CJT: 'Well, you mentioned Tesco's are a big user of GIS based information, would you consider incorporating your data with their data or vice versa?'

NM: 'Yes, well I suppose the 'extend' is a viable option, but we'll never get to the point of sharing data. One of the lessons that you learn very early is that the private sector companies are very reluctant to exchange data. We have gone down that route and tried it in the past. Actually, needing to get some basic information off the company about its retail turnover and proposed store would be, you'd get that one the basis of...this is the average turnover, and it's national figures. You know damn well that some of the sites we might be looking at will have probably a higher than average turnover particularly if it's a modern and innovative store. There are proxies that we use, but we never share the data. In terms of its extension, yes, the application of GIS and the data that's available, I mentioned the business about the bus routes etcetera; one of the sort of public services that we would like to take it to is to actually begin to put some of this information available for interrogation on the intranet as a simple

GIS product. We're thinking of delivering to ARCIMS to give people the possibility, strangers to the area for example, 'where's my nearest shop'? This would be a fairly rudimentary facility, but one I think which could prove extremely useful. Now if we could get the operators to some of those shops, perhaps on a selective basis... I don't know if you've ever come across our business directory?'

CJT: 'I don't think I have, no.'

NM: 'Business directories for Swansea lists all the companies that wish to represented on there, with the intention of trying to promote internal trading. Now, on there, we've got information about their product range, there's also an internet version that people can go and sort through. It wouldn't take a genius to think well, we could use this application as where is my nearest, what is the range of goods that it stocks, what are the times that it's open until, is there local car-parking provision, how could I access it in terms of travel by bus? So you could begin to bring in some other information. That's one of the ways of doing it, but I don't know if that's what you had in mind when you asked the question?'

JS: 'The main constraint on that would be hardware unfortunately, hardware and financial resources. Something that we're trying to tackle head on now, but we're not making the progress we'd like.'

NM: 'And I suppose in that context, a lot of the future operations within this council is going to be influenced by the new e-government program which we're embarking upon. We've now selected our partner, CapGemini, and entered into the agreement at the end of December. So, the process is beginning and its going to be revolutionary I think in the terms of ICT for information collection, retrieval, analysis and all that to help support decision making, so there will be changes. We're hopeful that GIS is going to feature in that, so that you're screen will be a split screen, which is part textual based, and part plan based, and that plan base wont be just in terms of the display of the plan, but it will be an intelligent plan which you can use to navigate your way around the county,

access data on a particular point property/business or whatever. But that's staring into the crystal ball slightly!'

CJT: 'So the future of GIS within the e-government initiatives is unknown then, as yet?'

NM: 'Yes, that's right.'

CJT: 'I see. Right, a few question on some GIS examples I have produced. Do you believe these are the most effective method of communicating my findings on a two dimensional image?' Interviewees shown map examples 2,3 and 4.

JS: 'Well, they're certainly different, and we're used to looking at that sort of information in tabular form. We're usually reading across a line of a table to see where the changes have been. It doesn't hit me very hard what the changes are, but I'm not quite clued into the key yet...'

NM: 'Yes, you're using quite a complex key there, there's a lot of different colours there. Ideally, you'd need to try and distil that down to about five. You need to get back to think about what you want the plan to show. The simpler the colour range, the easier that the mind can assimilate that. The second thing, is that really the power of GIS is one to give the spatial reference; colour coding change like that can be effective, but what you're doing is, you're getting from the imagery back to textual, and if you wanted, you could change that by incorporating another graphic in there and it could be a pie chart, it could have been a bar diagram. If you want to use it for that purpose, I think you've got to think about what the message is. But, the whole power of GIS as Jamie eluded to, is to take information which exists in huge schedules, which the mind has a bit of a problem digesting, and it takes a long time to actually read through it, and then you distil it into a visual form. That's the absolute power of GIS, but again, you've got to be careful to think about the message that you're trying to convey, and sometimes that requires you to reduce the volume of information in order to get that message across.'

JS: 'I'm just interested in the city centre, and what has been taking place there over that period of time.'

CJT: 'There are three different scales to the maps. I was wondering which you would prefer?'

NM: 'This one (unit) reads much better than that one, as you have some additional information there related to the inset which is zoomed into the city centre. When you actually look at the colour range there, you've addressed that focal point, although you still have your detailed change part there. If you look at that, there are less colours there, so you're beginning to hone in and you can say that green is for growth, and yellow is for the reduction. That one (unit change) works much better for me than the other one (percentage change). My brain can fairly quickly assimilate that one. I like actually this sort of inset plan, because what you're doing there, is you've got a GIS output that's two dimensional, but as we discussed, the GIS has that capability of flexibility and you can actually zoom in to the detail which you've demonstrated here, because what you're doing here is drawing upon exactly the same data. If that was me, I'd say the only thing missing was perhaps the city centre boundary, but that would have been the sort of comfort information that I would have liked, and it reflects the perspective of which we come from on this.'

JS: 'It would be interesting to see a very simple scale where you've just got pluses and minuses; net gains and net losses, just to see where the shift in, particularly in the city centre has been, in the blow up map, because that's the area of main interest and where the best NDR data exists. That would be very interesting, and I'd like to see that.'

NM: 'The other thing that could look just as effective, and I notice that you refer back to 1990 and 2000, because what you're trying to do is demonstrate the change, and all you've provided here is two snapshots, which, you know 2 years ago would have been big impact. You imagine running that information through a [Microsoft] Powerpoint slide, where you're merging from one slide to another on a yearly basis and you've got the capability with the technology to

support that, that would actually be more dramatic, because you're looking here, at as I said, the absolute change between that period and what we know is that changes don't occur in a uniform way, either over time or in terms of location. On a merging basis, I can see that as potentially a very powerful tool, providing you've got the information there. But, having said that, what you've done from using the GIS is that that's a huge quantum leap compared to the way in which this information would have been presented some time ago.'

JS: 'Yes, Chris was constrained with the data, because it was through us that Chris engaged Andrew Taylor of business rates, and that was basically all the data he could provide wasn't it? I was quite surprised that they didn't have annual data.'

NM: 'Well, I think with all this, and thinking about the way in which your study's going, yes, you can highlight the positives from it, but with any study or any other piece of work for that matter, you should never be entirely satisfied and always see the opportunities for future development.'

JS: 'Yes, because you're objective was to assess the potential use of non domestic rates data plugged into a GIS for assessing retail change, and it wasn't specifically about retail change in Swansea as a concept. Well, when you look at it from that point of view, you've definitely shown the potential. Mission Accomplished!'

CJT: 'Yes, that's the point of the research. I'm trying to develop a methodology to use as an extra tool, as it were. So How useful do you find the maps? Which one do you prefer, sort of, as regard to retail change?'

NM: 'Well, I think in would come down to the reason why I was looking at the data, because as I said, depending on what your perspective is, or your requirement in terms of the visual output can vary quite significantly, because if you were to say, well I'm only interested in those areas that have recorded a level of percentage change above zero, then you would completely change the order of that plan in order to highlight what you're trying to do is to show all the

options. Visually, and in terms of ease of understanding, this one (unit change), you can look at very quickly and pick up the overall picture than with that one because you've got a greater range of colours there, it becomes a little more complicated so your mind inevitably takes you back to match the colour with what you've got in the key.'

CJT: 'So, would these kinds of maps be useful to your line of work, again, as an extra tool to use alongside your existing techniques?'

JS: 'Yeah, I think so. I think it's horses for courses and provided its fit for purposes. I think as you've got it as a tool, as something you can implement fairly quickly, and you were looking at trying to get a specific answer to a specific question, then yes, definitely. Just having them for the sake of information they'd probably gather a bit of dust to be honest with you. But if they could be tailored for a specific use then we'd definitely be interested.'

NM: 'Yeah, I'd certainly go along with that. It goes back to the purpose; if you're using it to demonstrate the power of GIS in the delivery of information then you've achieved that. If you want to take it further and make it more specific in relation to a particular application then I think it needs to be further developed.'

CJT: 'Yes, it would be interesting to see how things such as floorspace figures could enhance the quality of the information the maps get across.'

JS: 'So, is this the tip of the iceberg we're seeing here, or is this the total number of maps you've produced?'

CJT: 'Oh no! I think I've produced 30 odd maps...'

NM: 'The thing that I'm looking at...This is the sort of thing that we'd have been looking at perhaps two or three years ago. What I would have liked to have seen here is the interactive base where you've got an intelligent layer, and by clicking on Parc Tawe for example, we could begin to drill down and we could see an occupier layout plan, and then by clicking on the occupier we could get

into the background information of the floorspace of that store, how long it had been occupied, what's the growth, and perhaps even a potential link there with imagery. It's to take it on that step further.'

CJT: 'OK, I see...'

NM: 'Oh, can I throw in one other thing? It's a debate we've certainly had within the team, I think there's a big quantum leap to be made from talking about this sort of thing as a GIS product to talking of it as a geographical information management system, because basically what we're talking about is that we believe, despite what you hear at conferences, probably 100 per cent of data can be spatially referenced in some way. If you operate on the basis that information should be collected only once and then used many times, what's of more interest to me is that one should say that this particular map product is just a transient image that we've generated at this point, and the real value of it lies in the databases that lie behind it that have been created to generate it, and from then that's where we're into well, how can we begin to link that database with another database of interest. It's not just a matter of overlaying layers. Do you understand what I mean?'

CJT: 'I understand that, yeah. Moving on, is there anything you would change to increase the maps' effectiveness?'

JS: 'I think it would be more effective to see them in the GIS environment rather than on paper, because that's the way we're used to working. If you can use the basic GIS functionality of zoom and pan etcetera, and searching by street and other basics that we've grown accustomed to, it would become more powerful than seeing it as a snapshot.'

NM: 'I think the other thing is that whatever image you show, be it in that active GIS environment or on paper, the outset must be, what it is that's been produced and certainly why. I always like to start the other way with why has it been produced – what's it been produced to solve as opposed to just information for its own effect. I think if you gave that as part of the introduction

then you begin to think about the nature of the product that you've tailed, and that would certainly help us.'

JS: 'If you sort of invert to the hypothesis almost and say if you were trying to find out a...scenario based...if you were trying to establish X and Y, how could the system give you your answer and then perhaps produce your examples on that basis rather than, right here are the examples, what can they be used for. It would be perhaps more effective.'

NM: 'Yes, and I think what's particularly important again is that we're focusing on, if you like, the spatial mapping. But what's probably critical is the database that you've probably had to clean up or adjust or prepare in order to deliver it, and the fact that database I suspect was absent until you'd done that work is actually a very important consideration.'

CJT: 'Yes, because that was one the key problems I had; business rates data wasn't available in an electronic format, so the data had to be physically copied in by hand.'

NM: 'So yes, there are chances of human error, although there could be errors in the actual system. How have you related to the property – one of the things that we've been developing in the team is the local land and property gazetteer, the LLPG, which is a definitive listing of all the properties in the area to which we've got an address point, and within that address point, we've got geo-coded coordinates. That's perhaps the way that information should be captured and stored in the future, and in fact, some people would say, well never mind the address point reference, lets actually get into [Ordnance Survey] MasterMap to use the TOID [geographical point of reference, or seed point] information, whereby that what we've got is a property which would include say the house, the curtillage to it and the garage that may exist within that curtillage. In that case there would be three unique references from the Ordnance Survey reference system. And for all of that, there is some support information which underlines each of those properties or parcels.'

CJT: 'Do you believe the problem of scale has been overcome in the maps?'

JS: 'I think the problem of scale has been solved there (points to inset map) in my opinion. A lot of the work that we do is fairly localised and you need the flexibility and the ability for the maps to fit the purpose. That to me as a postcode unit, is certainly not something that retailers work with that often in our experience. They're probably more geared towards census output areas or electoral divisions, so I guess my question to you would be, you know, to represent these outputs on different geographies.'

CJT: 'The different geographical boundaries could be overlain quite easily, but again, because business rates use a postcode as a geographical coordinate, it has to come back down to the postcode level.'

JS: 'Well, the problem of scale has been overcome to an extent, but it depends on how much other address information you've got. If you've only got the postcode sector, then you're largely constrained to this type of style.'

NM: 'There's errors actually in the address classification and that's why we'll be pushing for the authority in the future in capturing address information, it will be to the BS7666 standard so we'll have that uniformity throughout the authority, and that's also going to mean changes in systems. Now what we've been looking at in the LLPG, which includes about 116,000 separate properties and I may have said that earlier, is that we have now got the potential than rather than go in and take all the old datasets and say 'ahh', this address is wrong, this is what it should be, we're only going to link in there the UPRN, the unique property reference number that will link the geographical tag back to the LLPG. In that sense, then, we're also capturing alternative addresses for the same property. You know the sort of situation, where a house might have been 16 Gower Road, but the people that moved into it have now got it as 'Woodlands' as part of the address. Now, they're all alternatives, and it could be that the information you then might wish to link it might not have, or might only have one of those in the title, so you still maintain the opportunity to match, and that then takes you back to the whole of the addressing issue. The other thing that if you

actually use the address point which I presume you know has come from the postal address from Royal Mail to which coordinate information has been added by Ordnance Survey. There is a problem with some of it, and it is not as accurate as one would expect. And some of this work, especially where you zoom into this lower scale (points to inset) or a scale beneath that, you'll find that the coordinate points that you've got actually falls outside the boundary of the property. So there's a very important message which relates to GIS data and its production; when you capture the data, you should capture it at the lowest possible level in order that you can always aggregate it up, because if you capture it at too high a level, you cannot disaggregate it. It's as simple as that.'

JS: 'Just going directly back to your question, the overview is useful, but far more useful is to look at the sort of, established shopping centres, for example the local district neighbourhoods and in particularly town and city centres where you can actually see street layers and relate the changes you see into areas that you can...and looking at this, I know roughly where these areas are but its not immediately obvious where things are, so there is a problem of scale there for me.'

CJT: 'I understand what you mean. Other than the road lines, there's nothing to relate the data to is there?'

NM: 'But then you see, its back to the purpose. If you were trying to show the broad distribution [of retail activity] in SA1 then this has certainly done that. If it's a GIS based system, then you should have the potential to put it under the microscope and to zoom and to upgrade the map layer so that you can end up in an urban area, something like a 1:2500 plus scale. You cant get much more detailed than that.'

CJT: 'And which of the presentation styles do you prefer, on a simply visual basis?'

JS: 'It would have to be that one' (one with inset)

NM: 'Yes, in terms of visual, that certainly says a lot.'

JS: 'The other lacks a bit of detail for me.'

NM: 'And it depends again the purpose that the maps are for.'

JS: 'I think at that scale there could be more detail (points to example 3) to increase it's visual impact. Some more street information, some road names, perhaps the River Tawe, perhaps even some of the major superstores as you're talking about retail. Yes, there's definitely potential there to improve.'

CJT: 'Ok, brilliant. Right, moving onto some business rates based questions. Would business rates be easily available to you to be used in this kind of research?'

NM: 'Yes.'

JS: 'Yes, freely available I'd imagine.'

CJT: 'Do you believe that business rates data can act as an effective tool for monitoring change in retail activity?'

NM: 'It can act as one of several.'

CJT: 'So, in effect, it would be a tool in the tool kit then?'

NM: 'Yes, that's it. Probably the fundamental one. What you've got to remember is, that you never go into this starting from ground zero, because we've got our own land use surveys that we carry out annually of all of the shops in the shopping centres. The city centre is surveyed on a monthly basis. We've got historic data there in terms of GOAD plans which go back to the 1970s; they give us the information about the ground floor occupiers. So there's a lot of other sources. A bit of additional information for you, the way in which we've

constructed these local land and property gazetteer we've used three primary data sources. We've used electoral registration data to pick up the domestic properties, we've then used council tax and we've also used non-domestic rates which takes you into this business rates category I believe. I presume that's where you were coming from there. So yes, there's a variety of sources. It's probably actually one of the keys for picking up on changes provided you're happy that its factual base is as tight as it could be.'

JS: 'It's good that it's standardised across the UK in terms of the categories that they operate within, and the banding as well. So if you wanted to compare across areas, certainly across an area the size of ours then yes, it would be a good dataset I would have thought. That's if you've got somebody who's prepared to sit there and type it through!'

NM: 'Yes, I suppose some of the weaknesses are in terms of it's classification of the businesses.'

JS: 'I not sure about that, I think they use standard industrial classifications don't they?'

CJT: 'Yes they do.'

NM: 'To what level? Is it the seventeen or....'

JS: 'No, they use the four digit SICs which go back to a really specific business use.'

NM: 'I see. I think my only reservation there would be, and I've not looked at them for a long time, would be how well it reflects the presence of superstores, and if you like, the hypermarket solution, because if you look at the way in which retailing has evolved, which perhaps starts a little before the 1980s, that one time we started off with the supermarket, and then it went to the superstore and the superstore took that innovation beyond just selling the food and the convenience goods to a wide range of products. Now, you've got things out of

Fforestfach, and things isn't meant to be a derogatory term...you've got Tesco's Extra and when I look at that now, I think we've got even closer to an out-of-town department store in many ways. But, unlike an out-of-town department store, this is an operation that is very much geared towards selling the fastest moving line. And it's extremely responsive to the turnover it can generate from those lines.'

JS: 'To give it another dimension, we need to look at the proportion of total rateable value that comes from different types of retail and different types of business, because you've looked at it in terms of numbers of units, and if you could add to that what they contribute to the overall business rates pot and see how that's changed over time, that would be powerful, because that would pull out the superstore message pretty strongly, and we'd see the concentrations up at Fforestfach and possibly Morfa as well.'

CJT: 'I've actually mapped that.'

JS: 'You have? I'd like to see that.'

CJT: 'I could get a copy to you if you'd like to see them.'

JS: 'Yeah, please do! It would be interesting to see.'

CJT: 'So, as we said earlier, business rates are recorded in a uniform manner every five years they are produced. Do you think this uniformity could provide a stable background to use in this kind of research?'

JS: 'Well, I think it's essential if you're looking to benchmark in the way that you've attempted to here and look at change over set periods of time. If you've got changes in recording standards and changes in classifications in the intervening time, it becomes virtually meaningless. We've got that sort of problem in many of the datasets, so the longer we hold onto that uniformity the better!'

NM: 'How have you overcome the issue of multiple businesses in one unit? Or are you saying that the business rate has been prepared for the building as a whole and not broken down?'

CJT: 'Well, it would be recorded in business rates as two separate heriditaments'

NM: 'Oh, I see. So you've picked that up then in terms of your colour coding?'

CJT: 'Yes I have.'

JS: 'So what would happen if, to come back to Nicks point, if you've got two on the same property, are they going to be stacked on top of each other? If you've got a tower block...I know there's one in High Street which has got twenty eight different businesses in there...how do you cope with that, because the geographical coordinates are going to be the same.'

CJT: 'In that case, they'll all have the same postcode sector, so for example, if you take that one there (points to an example postcode sector), you could have fifty businesses which will be recorded as a dark green or similar for example.'

JS: 'Yes, but some of them have their own unique postcodes which could be a bit tricky to see. I'm not saying it's a big problem, only in the city centre.'

CJT: 'Yeah, another point to consider. I suppose that'll come down to the scale problem though. Do you believe that this kind of data would provide a useful indicator to go along with your existing datasets?'

JS: 'Well, the approach certainly would, especially if we had access to the data that sits behind it. And we could manipulate and modify what you've done here, going back again to suit the actual purpose that you're putting the data to, then yes.'

NM: 'We haven't used that level of data in that format before. Some of the elements that we tend to concentrate on are not much on the occupation, but are looking at the distribution vacancies, particularly in the city centre that we're doing on a monthly basis. I think it's down to purpose. There are two ways that if you didn't start of with a very specific brief as to why you were going to produce that data, then it comes down to once you've produced data you can take a look and you can begin to imagine the potential applications. There's nothing wrong with doing that, but I think the big question is what value added would it bring to the decision making, or any decision making process and it's always that sort of issue that exists out there. Some people can make an industry of actually collecting data, but the real test is always the way in which that data is used. It's got to be value for money, especially in the local government environment at this point in time.'

CJT: 'That's true, yeah.'

JS: 'Looking at it from that point of view, it's our data anyway! It's a resource that we haven't tapped into so it's definitely something we should explore.'

CJT: 'Yes, well all of this data is easily available to you. It's where I got it from!'

NM: 'It's a question of... I can honestly say we haven't tapped into it, because we haven't actually needed it. We haven't identified a purpose for it, and we haven't been able to link it with other information.'

JS: 'Yes, but sometimes when you see something put in front of you, you see the potential and the next time around you might think we could maybe employ that approach.'

NM: 'Yes, we do keep a very open mind.'

CJT: 'Well, like I say, it's an extra tool isn't it.'

JS: 'Yes, that it.'

CJT: 'Assuming business rates were available in a computerised format, of some sort...'

NM: 'They are in a computerised format aren't they?'

JS: 'No! Not really... '

NM: 'Are they on Academy or SX3?'

JS: 'They're on Academy and its not a terribly friendly system for getting information out of. We went through all sorts of hoops to try and get the data in a computerised format.'

NM: 'I think what I'd say to you is that because of where we're actually going as an authority, and because of what's happening outside in the computer software industry, you are going to see some of these systems, which I wouldn't call Academy a completely closed architectural system, but you're going to see them opened up in the future, and certain issues over the LLPG and NLPG referencing...there's going to be filters built in there and the industry knows it needs to do that in order to survive with its products, if not to change. I'm starting to think now, is Academy now part of Northgate?'

JS: 'Yeah, I think so.'

NM: 'But anyway, there are things happening out there in the software world that you're actually moving toward national standards, because it started off as a number of small competing companies meeting a small market. Now things have moved on and integration is now the key. So, that's where the software system will change and it'll be something that's part of this e-government program; we'll be looking at data sources and highlighting their weaknesses.'

JS: 'Sorry, you didn't finish your question...assuming they were available in a computerised format...?'

CJT: 'That's ok. I was going to say could they be easily added to your existing GIS?'

JS: 'Yes, very easily.'

NM: 'Yes, provided that we've got the street reference so there's a UPRN built in there that relates to the LLPG, and that's the way we've already begun to start to put them in.'

CJT: 'OK. So...are you aware of any problems within business rates which might reduce the usefulness of these results?'

JS: 'Not as far I'm aware. They're fairly tightly set. They're collection methods are quite favourable and the accuracy is about 95-96% in terms of whether their coverage is comprehensive. And, If it wasn't then in some authorities they would be down to 80 odd per cent, which means they're not getting the revenue, but there's also gaps in the data, then that could be a problem, but I think it's fairly solid.'

CJT: 'Yes, apart from the odd geographical coordinate that I've had a problem with!'

JS: 'Yes, that's probably because of some of the postcode changes that are taking place, because postcodes are cyclical, and I know that this little bit here (points to postcode sector in SA4 on example 1), there were some changes in SA4 and SA1. It wasn't so long ago, I think it was 1999 – you probably would have picked it up and some of the SA1 postcodes swapped places with the SA4's which didn't make any sense. I know for example, there's an SA99 stuck in SA6 somewhere which is the DVLA headquarters, and it can get all a bit confusing.'

NM: 'I'd say that you should see the overall postcode geography as something potentially very flexible, which is backed up by its lowest common denominator

and collect it on an individual property basis and have it referenced on that, and then you can affectively introduce into a whole series of alternative layers for analytical purposes.'

JS: 'Another alternative approach we'd probably take is to use the postcode boundaries and capture the individual properties that fall within those and match in non domestic rates data to those, so that you've got the actual geographical coordinate rather than relying on postcode units which are subject to change; sometimes that we don't know about, and if you're interpreting that change over long periods of time, then there's going to be an error creeping in there. Just a thought.'

CJT: 'A thought worth considering! Right, three more questions to go, some general questions. Are you aware of any other research techniques aimed at monitoring retail change in Swansea at the local authority, or indeed anywhere else?'

NM: 'Well, we actually do a fair bit ourselves in terms of the actual distribution of units, and we obviously correlate them into the main shopping centres. We also take account of floorspace, which is one of the things I should have mentioned earlier. Looking at your plans, you're looking in terms of net change in terms of numbers. Now the fact of the matter is that you could lose ten unit shops within a shopping centre, and be replaced by one. That would show you a negative loss, but the reality is that that one could have a far greater level of floorspace than the other. So we've only got part of the equation that's creeping in here. But to go back to the other research, we're primarily keep an eye on the openings and closures aspect. Sometimes you will see a situation where changes take place but they won't be reflected in business rates. Changing company name for example, although part of an overall group, there can be a whole sort of series of explanations. What we'd like to think is that we've actually tailored the work that we do to meet our immediate needs, and we'd like to take it a step forward, further forward, but that's really around the whole issue of joining up information from a whole variety of databases, as we've explained, we've got a little way to go on that.'

JS: 'What we're acutely aware of, every time we get a planning application from the likes of Tesco or Asda is that these people have got access to, you know, very powerful spatial analysis tools and money is no object. As they've got their own loyalty card data, which is mapped on an individual address basis, they know...well, it's almost like a big brother scenario that they know more about us than we know about ourselves a lot of the time, and companies like CACI can build that information into a complex black box model, and can use it certainly to their advantage. It's often difficult to argue against them. We haven't come across anything specific that I can share with you where GIS has provided a question that we couldn't answer from one of these companies, but the potential is always there, and I've mentioned CACI and Tesco who are probably the biggest players. I'd like to get in and see what they actually do, to see how their GIS operates and what information they've got access to there.'

NM: 'Yes, well the GIS is part of it, part of the information. You've probably seen it. If you go to shop at Sainsbury's regularly and then drift away, you will get within about a month or two some vouchers, and you'll find that those vouchers are tailored to whatever your last shopping experience was. They handle data in a completely different way. They're profiling down to a really fine grain, and they need to do that for the effectiveness of their businesses and not least in view of the level of competition. We don't really need to work that way, because our considerations are not commercial as such; they're more related to the objectives of access to provision. It's not who the retailer is, but whether there is retail provision within that area. But you could argue, well, if we could improve the grain of our information, we wouldn't need to go out and commission surveys every now and then to say, well this is the existing shopping pattern; patterns can change over night when a new retailer opens. We could perhaps begin to, instead of buying the information on household income for example from the CACI, potentially we could be getting some reports from central government sources. There's a whole sort of revolution that needs to go and issues such as the data protection act have actually obscured some valuable information that's already held by government, both centrally and locally.'

JS: 'To give you something else to think about, there's a whole industry made up of researching retail using GIS, and it's a big industry, and there's a lot of money to be made out there.'

CJT: 'Yes, I've noticed that from this research. Do you believe the collaboration of business rates and GIS in this sense is a viable option for monitoring retail activity?'

NM: 'It's one of many.'

CJT: 'Yes, another tool in the box.'

JS: 'Yes, that's the thing. Yes.'

CJT: 'Are there any other aspects of the local authorities work that this work could link into?'

JS: 'Well, what sorts of business rates themselves have in it? That's the immediate question for me. I don't know of any sort of monitoring they do, as they're primarily concerned with managing the desk here & now, but there's a definite research gap there, regarding long term land use changes. You looked specifically at retail, but it could equally be assigned to council tax data I would have thought for residential purposes, whether there as a need is another question.'

CJT: 'Yeah, you could easily map industrial and office changes as well using the business rates data. Well, that's it. Thank you both very much for your time.'

Transcript B

Name: David Williams (DW)

Position: Senior Planner, City & County of Swansea

Address: Office of the Chief Executive, County Hall, Oystermouth Road, Swansea SA1 3SN

Date & time: February 10th 2006. 11.30am

Location: County Hall, Oystermouth Road, Swansea.

Transcript:

CJT: 'Are you aware of GIS being used in Swansea (Council/other organisation) to monitor retail activity?'

DW: 'It's used as a tool obviously, in terms of mapping, but I wouldn't say that we regularly do surveys to record what kind of positions [retail locations] are. Those resources are just not there anymore. We know what's happening to knowing which major developments are coming forward. Purely on a retail basis, or any other similar subject really, we don't really do a huge amount of monitoring in terms of actually going out and recording things. I think Nick Mills' team does that as and when required so if there's a purpose, for example...a major enquiry or something coming they would do the background research and Nick's team obviously keeps a pool of the data. Nick keeps his finger on the pulse of this kind of thing, and is very knowledgeable and would know more or less the key resources that would monitor retail activity. I'm not sure what systems his team uses, but obviously we do our recording on GIS.'

CJT: 'Do you know what sorts of information are held within the GIS?'

DW: 'Well, the reason we use GIS at the local planning authority...files for example are all kept on GIS, and you can pull out information. For example, if you wanted to know where housing land is, you can easily get the data out, so you can interrogate it that way, or the land ownerships are on GIS. So, its really a database for us that we can interrogate on a subject by subject basis, you know, it saves time sifting through everything and there is a member in our

team who is very knowledgeable in GIS so we just go to him and ask him to pull things out for us.'

CJT: 'Is the GIS data council produced or is it produced externally?'

DW: 'Well, we have to start with Ordnance Survey obviously for data placement, but the majority of the database is run by the authority, as far as I know anyway.'

CJT: 'Are you aware of any plans to extend the use of GIS in the local authority?'

DW: 'We are obviously, in the council, trying to make best use of technology as a database and GIS is one of those tools, so the e-government approach is being adopted hook, line and sinker in Swansea. We are spending a huge amount of money on that with CAP-Gemini so, you know, as a tool, where data is recorded visually, GIS is the obvious option. So I guess, there would be more data capture and all of our planning applications are on GIS but it's the data capture that takes the time.'

CJT: 'Do you believe postcode data is the most effective method of recording change?'

DW: 'Well, we'd go on things like city centre boundaries for example, which might coincide with that boundary, but it might not. If we're looking at city centre information, then it would be corrupted by stuff that's not in the city centre, so I would be looking for a purpose boundary as opposed to postal codes quite honestly, unless it was a very wide ranging study, where you wanted a general patterns to come out, but usually we would work on say, what info do we need for, I don't know... the maritime quarter for example, or the city centre, or the new SA1 development. SA1 as I would know it would be the SA1 project. Sometimes the boundaries might coincide, but it wouldn't be the method I would use, it would be my starting point, unless I was looking for a very wide area and you were looking for generalisations rather than specific information. Then

obviously if we're looking at a city wide study or a, you know, regional study, you could sort of amalgamate a few postal areas together to give a wider overview. Whereas I'm much more concerned about the city centre boundary that we're working to, in which case I'd be looking for ED's (enumeration districts) rather than postcode districts. And ward districts have obviously got their own connotations in terms of number representations and wards are more, if you like, are more directly associated with local authorities than postcode districts. And those are then broken down into centres, and then into enumeration districts. So the starting point for us would be the ED's because then we know we've got the census data and wards because they build up into amalgamations of ED's and see how those would fit. So I'd start there quite honestly rather than with postcode districts.'

CJT: 'How useful do you find the maps as indicators of spatial retail change?' (Interviewee shown map examples 2, 3 and 4).

DW: 'Well, I'm used to looking at maps and I'd get an instant pattern of...you know, if I didn't know Swansea I'd say well yes I know Parc Tawe, but I'd be wondering what that is (points to a postcode sector in south western corner of SA1, in example 2), so I'd be asking questions, you know. That looks out of proportion to that' (points to SW corner of SA1 and Parc Tawe)

CJT: 'Yes, that's the thing, because postcode sectors extend to the mean high tide level, which is roughly along that line there (points of southern edge of SA1), so there is an element of distortion if you understand what I mean.'

DW: 'Oh I see, so just there (points to sector towards south of SA1), it would show that there are some changes within the maritime quarter with some shops being introduced there, but then obviously that looks totally out of context to that postcode sector. So, I'm looking at two things here then aren't I? I'm looking at intensity of change (example 3) indicated by the colour, and the area of change indicated by the boundary of the postcode sector (example 1). How have you defined the boundary of these sectors?'

CJT: 'The boundaries are Ordnance Survey postcode sector boundaries'

DW: 'Oh right, so how do you know that Parc Tawe, for example is made up of X number of these postcode sector sub-divisions then?'

CJT: 'Well, I used business rates to map the change as a start.'

DW: 'Oh right, so those different units in there are not all one postal address then are they? They are different address is that what you're saying?'

CJT: 'That area for example has one postcode. Whilst all of the premises within that sector have different individual postal addresses, they all have the same postcode.'

DW: 'Oh I see, so how do you find the shape then?'

CJT: 'The premises recorded within business rates data all come with a postal address, along with a postcode. Ordnance Survey postcode data comes with the visual image along with attribute, tabular data which includes the postcode, so it's a matter of correlating the postcode in the business rates to the postcode in the Ordnance Survey tabular data.'

DW: 'So you're using Ordnance Survey data to map changes in BR data? I see, so you're dependant on OS keeping up to date then during that period. So, for example, if you were doing a study between 2000 and 2004, when the Ordnance Survey might not have changed but the outlets might have, you might not necessarily be able to map the changes unless the Ordnance Survey keeps up to date.'

CJT: 'Yes, that's one of the key problems. For example, if there has been some new developments and some new postcode sectors have been introduced, and Ordnance Survey haven't kept up to date, there may be some of these developments which wouldn't be included on the maps. That's the fundamental problem. Luckily, within 1990 and 2000, that wasn't a problem. If this were the

case there would be a list of X number of commercial properties with no spatial data which wouldn't have been included in the maps.'

DW: 'Right, and when you say the Ordnance Survey...does the OS, say for that Parc Tawe shape, which doesn't look right to me...'

CJT: 'That shape is the postcode sector.'

DW: 'Right, but the actual shape isn't right, because it shouldn't be doing that should it (DW points to the northward extension of the postcode sector)?'

CJT: 'The shape is the OS postcode sector, so Parc Tawe would be that segment there, but the entire shape has the same postcode.'

DW: 'Oh right, so, in effect, that is distorting the information really then.'

CJT: 'Yes'

DW: 'Right, so there's an obvious weakness in the system then.'

CJT: 'Yes, there are inevitable weaknesses, which is the point of theses interviews. I'm glad you picked on that point! It all helps to design an effective methodology!'

DW: 'Sorry, back to the original question, I went of on a tangent then.'

CJT: 'No worries, it's all useful to the research! I was wondering which you thought was the most effective method for illustrating retail change. Do you prefer the percentage change map (example 3), which is a statistical analysis, or do you prefer the unit change style map (example 2)?'

DW: 'Right, well the only snag with unit change is that one unit could be one hundred and fifty thousand square feet couldn't it, whereas ten other units might only add up to fifty thousand square feet, so I have no idea what the scale of the

number of the premises is, but is this going to tell me that, but is this (% change) going to tell me more of the intensity of change then isn't it in that sense.'

CJT: 'It will do, yeah.'

DW: 'Right, well I could see that (example 2) would start me off as it were uyt think that 6 or 8 units had been introduced here or here which could be worth looking at, but I might miss, then that one superstore had opened because there's only one of them. And if the percentage change shows that one accounted for a 500% change or something, then obviously that would alert me to the scale of change. So presumably, you'd look at the two side by side on that basis.'

CJT: 'Yes, both styles are included in the research, so they might be compared against each other which seemed the best way to do it.'

DW: 'Yes, that seems the best way, because you'd want to see if there was a huge intensity of change somewhere, and, conversely, you'd want to know if that was down to one store, or are there a number of stores there? I don't think you'd want one without the other quite honestly. The unit change maps would alert me to the fact that something was happening, for example, if there were 8 units opened in a certain area, I might miss that, but this one (example 3) almost instantly gives me a sort of...but then, you know, the number of units in the maritime quarter might be the same colour code or next to it, but I'd know they were just corner units and they're not going to amount to anything. Whereas I know Parc Tawe might be the same colour, but I know the intensity of development is significantly different. Which is fine, because I know the area, but if you were not from the area, that pattern might not be as obvious.'

CJT: 'So percentage change would be your preferred choice?'

DW: 'Yes, if I had to choose one, I'd go for the intensity of change (example 3) because that's what I'm really interested in. But I'd need to know that first, and

then I might be interested in the unit change too. I'd prefer to know the scale of change before I knew the number.'

CJT: 'Right, so going on simply the visual aspect of the maps, do you prefer the larger scale map like that (shows example 4), or do you prefer the other, smaller scale maps (example 3) or the maps with the included inset (example 2)?'

DW: 'Well, it depends what you're looking at, you know, are you looking at a change at a sub area basis, or a change specifically on a certain area. You know, that's more interesting to me (example 2), because I know the geography and can pick things out, allowing for that anomaly (points to Parc Tawe postcode sector) but I can pick things out from that, so that's beginning to tell me a story already, whereas this is more abstract (example 4). Really it depends what your study is looking at. If it's looking at, as I say, just general statistics, and you want to know what that region or that sub-region is doing, then that's fine, you might not be interested in the values. But, if I'm interested in knowing exactly what's happening in the city centre for example, then I can sort of work it out from there (example 2) but I can get a much more accurate view because I know where the streets are and I could name the streets without having a map to do that for me. So, on the whole, that's more meaningful to me (example 2), but I'd be focusing in on a particular area aren't I, where the statistics are important as opposed to that map (example 3) where the geography is important if you know what I mean. You know if I, or Nick [Mills] or somebody was doing an appeal against a retail developer who was saying can you define catchment areas for drive times etcetera he'd be able to tell you that within that area there is X amount of floorspace. Then, you know, that sort of stuff hasn't got to be site specific in that sense because its condensed down to a table isn't it. So for that sort of research, it's fine for that, but if somebody was saying within the city centre, Oxford street is moving in this sort of direction...Well, I'd need to know what we're talking about then wouldn't I, and I could be looking for X, or I could see a pattern emerging at Y. Do you know what I mean, it's horses for courses really. To be honest, for this sort of work, Nick would be different, as he'd would be the policy, statistical side of things, whereas I'm more interested in site specifics to be honest with you.'

CJT: 'So is there anything you would change on the maps to increase their effectiveness? We've already discussed a lot of things which could be changed.'

DW: 'Well, things like that would throw me straight away (points to postcode sector on south-western corner of SA1), I wouldn't have a clue what on earth that was, and that would get me worried about the data in that area. So, I think...well, you've got the main details. I think if there was one or two other significant things like the coastline or the river or the shoreline or something like that, something that just quickly...apart from just road lines, but just something – like some obvious geographical factors that can be brought out, that would just orientate me a little bit more I think.'

CJT: 'OK, that's very useful. Do the maps illustrate facts which are useful to your line of work?'

DW: 'If for a particular purpose I wanted to go back and see the progress of change over a period of time, I think the maps would be quite good. We [planning department] tend to deal with the here and now, but it would be quite useful sometimes to have an interpretation of how things have changed over a period of time, because we can forget really and the trends might not be so obvious, but they might be if you interrogated something with the time information to it on a constant basis and obviously it's easy to do that, so that might just show you the drift, or the centre of gravity of how retailing has changed for example if that what you were looking at. You know, over a ten year period that could be quite interesting to perhaps give that extra bit of a context. But, unless there was a specific purpose for this sort of time based data, then I wouldn't necessarily be more interested in that, unless somebody was making a point to me, you know...the city centre has moved in this direction and these maps would show quite clearly what's happened. So that might be useful on occasion. But as a rule, I wouldn't be stocking my desk with maps like these to be honest, but that's because that's not what I'm about, you know. Somebody who is doing retail planning and is concerned with the overall

retail policy approach to planning for example then that would be more useful to them. I'm more interested in new schemes and development and getting those off the ground, whereas somebody else is more interested in the policy side of it, this sort of data might be more useful for them.'

CJT: 'Brilliant! Leaving the GIS aside for the minute and moving on to some business rates based questions, do you know if business rates data would be easily available to you?'

DW: 'To be honest, I've never used business rates, so my knowledge is very limited. I'll try and help where I can though. I wouldn't really know what we're talking about to be honest. Business rates are a database which is available isn't it, and presumably if that were in a GIS, that could be easily used.'

CJT: 'Business rates are recorded in a uniform manner every five years...'

DW: 'Just to get an idea, what do business rates tell you then in terms of retailing? Does it tell you the amount of floorspace, what the uses are, what the units are?'

CJT: 'Yes, each premise has a code. I'm not sure what they are for planning purposes. Does a shop have the code A1?'

DW: 'Oh yes, I see, so they have a land use code?'

CJT: 'Yes, that's right. And it has an address, name of the store, type of the store, retail warehouse that kind of thing for descriptive purposes, and it has the geographical coordinate, which in this case is the postcode, and then it has the rateable value.'

DW: 'Oh I see, that's interesting. So, does it tell you how much floorspace a store has got?'

CJT: 'No, unfortunately it doesn't.'

DW: 'But presumably the rateable value has been worked out by some form of floorspace figure. So if you could unlock the code they [rates valuers] use to get a RV figure, that could be done quite quickly couldn't it, because I would be interested in floorspace, because the number of units can be misleading, as there could be a number of shops which doesn't really amount to anything, or it could be one shop which could have a lot [of floorspace]. But these maps do alert you to the change, so, you know, it's a starting point for perhaps a little but more research somewhere else. Yes, because we can then get hold of floorspace from planning records, so if we know there are six units there, then it would be recorded wouldn't it.'

CJT: 'OK, so do you think business rates data could be easily added to the data you already hold in your GIS?'

DW: 'Yes, what we're trying to do is at the authority and the new e-government system of resources at Swansea is to make all the data that we hold in different parts of the authority accessible to anybody who wants to use it. At the minute, data tends to be siloed into different boxes don't they, and you're not always aware of what data another team or department might hold and vice versa, so anything that gives you instant access to data like that is going to become a tool isn't it, that you can use, so I think the greater the awareness is where the greater capabilities become from information. You know, the last thing you want to do is gather the same information twice. So when we get good at it, we can cross correlate data against each other so that's the whole of where we're spending money now, is to make this a much more sophisticated databank of info that is available to everybody. So that would open up a whole load of new opportunities. That's the whole point of the e-government initiative.'

CJT: 'Are you aware of any problems with business rates which may reduce their effectiveness for this sort of study?'

DW: 'Well, to be honest, I don't know enough about them to answer that question!'

CJT: 'OK, no problem. Just some general questions now. Are you aware of any other research techniques aimed at monitoring retail change in Swansea?'

DW: 'Well, again, Nick is the man for this question; I keep referring back to him. That is a section where there are some research resources. And I know that somebody in Nick's department used to do, and probably still does, for some key areas such as district shopping centres or the city centre would keep and update plans which we did and would show where they were, and this could be done on a national basis.'

CJT: 'I see. Are they the GOAD plans then?'

DW: 'Yes, but we, I think on a regular basis, or we used to anyway when I was over in the planning department, update those plans ourselves by somebody just going round and monitoring the changes, so over a period then, we could compare how a street had changed by you know, not necessarily just by say, it was retail and it isn't now or vice versa, but by the type of retailing outlet, because that could tell you something as well, you know, there's a lot of charity shops certainly coming into this area, giving an indication that the area is changing but not for the better. So, there was somebody in Nick's section who used to go around and ensure that those GOAD plans were kept on a time basis. They'd physically record it, but perhaps they're GIS recorded now for all I know, but that's quite useful at times, just to see how things have changed over time, but that takes you down to really fine grain detail, basically down to street by street basis. So that's a different resource to the generalised postal information, and gets it down to a sort of block of property within a street area. So that is probably still being done. We obviously keep the amount of floorspace within any particular geographical area, whether its convenience or durable, net or gross floorspace – they are our sort of basic sub divisions, so we know that the city centre's gross convenience area has increased. That gives us an indication of change as well doesn't it on the scale of things, which is quite a useful dataset to have. Again, there is work to be done to keep that up to date, but that allows us to then benchmark against and give us a health-check

against other similar centres elsewhere. So they're the useful sort of figures to have. Vacancy rates are important as well, but I don't think they are recorded by business rates.'

CJT: 'No they're not.'

DW: 'No, because that's quite a useful tool you know, to know where the vacancies are.'

CJT: 'Vacancy datasets are very hard to come by – it's basically a matter of physically going out and looking.'

DW: 'Yes, I understand, you actually have to go out and look for the vacant sites. So that kind of thing can be very difficult, and we don't have those sorts of resources within the council these days. When I first starting in planning, data collection like that was part and parcel of the departments work in a way, but again, the resources are just not there anymore. Nowadays, it's a matter of recording as and when we need the information.'

CJT: 'Very time consuming and expensive I'd imagine. Do you believe the collaboration of business rates and GIS in this case is a viable option for monitoring retail change?'

DW: 'Well, yes, from what we've discussed, it's a viable starting point. I wouldn't like to rely on that totally, but I think it can act a as a tool within an armoury of tools. So, I think it's useful, but useful in conjunction with other things, perhaps.'

CJT: 'OK, are there any other aspects of your work that this work could link into?'

DW: 'Well, it's a tool for recording change over different time periods. If a premise was recorded as A1 for example, which we planners use, then I could tell for example how many of the premises within this sector are restaurants that

could be useful. For my line of work, if it records land uses, then you're away really, aren't you.'

CJT: 'Oh right, so how easily could it link into your existing work? Would you just simply add it on to your existing research to use as another tool?'

DW: 'It might be useful in terms of particularly the office/industrial uses because we're doing an economic regeneration strategy which is a strategy across the authority as a whole where it's not the geographical shape, but it's the volume and degree of change by the number of units, which is what your information can give us. You know, so that could be useful for research that's done as part of a general economic strategy to show whether floorspace is going down or up or whatever. But no, it doesn't come back to floorspace again, does it? That's the key weakness. Because floorspace is a commodity that we all understand you know, or employment related to floorspace, but it doesn't show you employment either, so that's a weakness; it just shows you the number of units, so I think that's the big drawback.'

CJT: 'OK, well that brings it to an end. Thanks very much for your time.'

Transcript C

Name: Dr Colin Thomas
Position: Senior Lecturer; Department of Geography
Address: University of Wales Swansea, Singleton Park, Swansea SA1 8PP
Date & time: February 10th 2006; 10.00am
Location: Department of Geography, UWS.
This interview was not recorded

Initially, Dr Thomas stated that the patterns highlighted on the key findings sheet given to him previously matched the known patterns of change evident in Swansea from the 1980s. He asked questions relating to the hierarchical order of shopping centres in Swansea, suggesting that Gorseinon is not a district centre, and that maybe I should have included larger centres such as Llansamlet and Neath. I explained the study area to him, and explained the problem of scale; where patterns of change would not be clearly legible at such scales. I stated that hierarchical centres within the study area where used instead, as they were of greatest importance to the study.

When asked about the use of GIS in Swansea to monitor retail change, Dr Thomas mentioned GOAD plans, which are produced every two years and are highly detailed maps covering retail usage in the major town centres. Although he knew of academics (and students) using the plans to monitor retail change in various centres, he was unsure of the current level of usage by the council. He suggested that the council might be using 'in-house' data rather than this externally produced data, as it could be produced to demand, as and when required.

Dr Thomas found the usefulness of the maps (examples 2, 3 and 4) ok at a gross scale. He mentioned he preferred example 2, with the inset, because it 'zoomed' into the area of most importance, in this case, the city centre. It was mentioned that the maps would make a good accounting tool for a local authority planner, rather than maps they might use to inform decisions and policy. An obstacle with the maps was discussed, regarding the problem where

there might be a relatively small shop which has a huge car park. It was decided that the car park size would not affect the results, as the maps are produced by count, rather than measurements of total floorspace. Another factor pointed out was that, although the maps were relatively easy to interpret, the shading was not as clear as it could be. It was suggested that a number of different colours could be used rather than shades of two colours. Adding to this, suggestions were made that some form of density or retail intensity mapping, such as dot mapping (each outlet is represented as an individual dot) may be considered to highlight the intensification of retail activity in certain areas.

Another problem was discussed regarding the definitive problem of the retail classifications. Dr Thomas stated that he knew some of the banks in the Enterprise Zone were in fact regional headquarters, rather than the actual financial retail outlet.

When asked about increasing the effectiveness of the maps with regard to showing changes in retail activity, it was suggested that the extension of the postcode boundaries to the mean high tide level might distort the visual image of the map, as those sectors at this boundary will appear larger than those situated in the town centre for example. It was stated that the data was legible and very easily understandable.

Following the GIS based questions, a number of questions were asked regarding the use of business rates to monitor retail change. Dr Thomas stated that business rates data would be easily available to him, and would be very useful if they were in some form of computerised format.

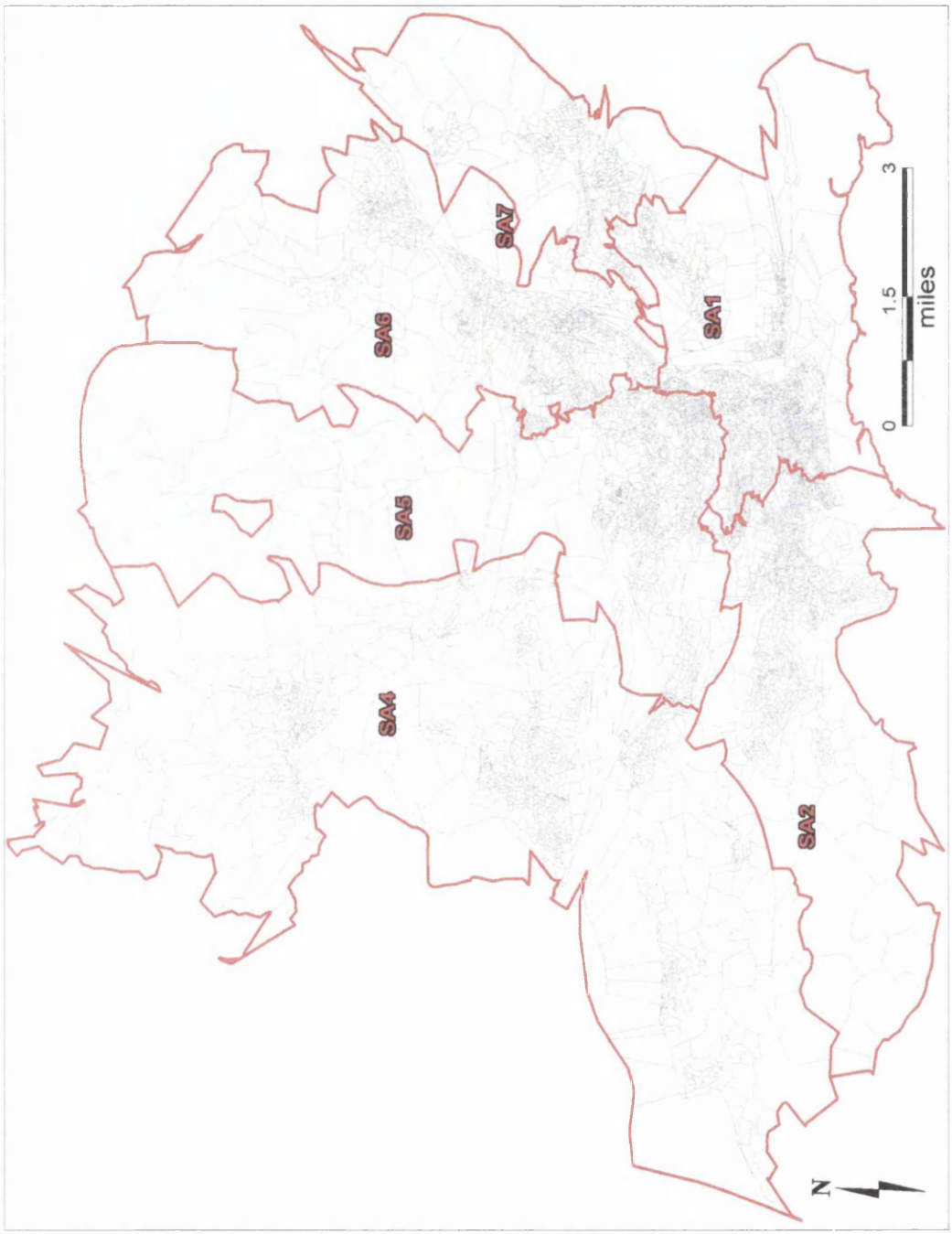
It was suggested that business rates business rates data could act as an effective tool to monitor retail change, as well as being effective for monitoring changes in other elements recorded through business rates, such as offices or industrial premises.

It was also mentioned that the uniformity of the recording system used for business rates could provide the stability required for sound analysis. Dr

Thomas suggested at this stage that the idea had lots of potential, and was a good innovation for monitoring changes in retailing.

When asked if the method could be used alongside his existing research, Dr Thomas again mentioned that the maps are useful at a gross level, useful as a generalisation of the patterns of retail change. He said they may be used alongside things such as GOAD plans. It was stated that the maps could be utilised as a macro-scale investigative research tool, rather than as a tool for monitoring the changes over a small area, such as the town centre, as GOAD plans or similar would be useful in such areas.

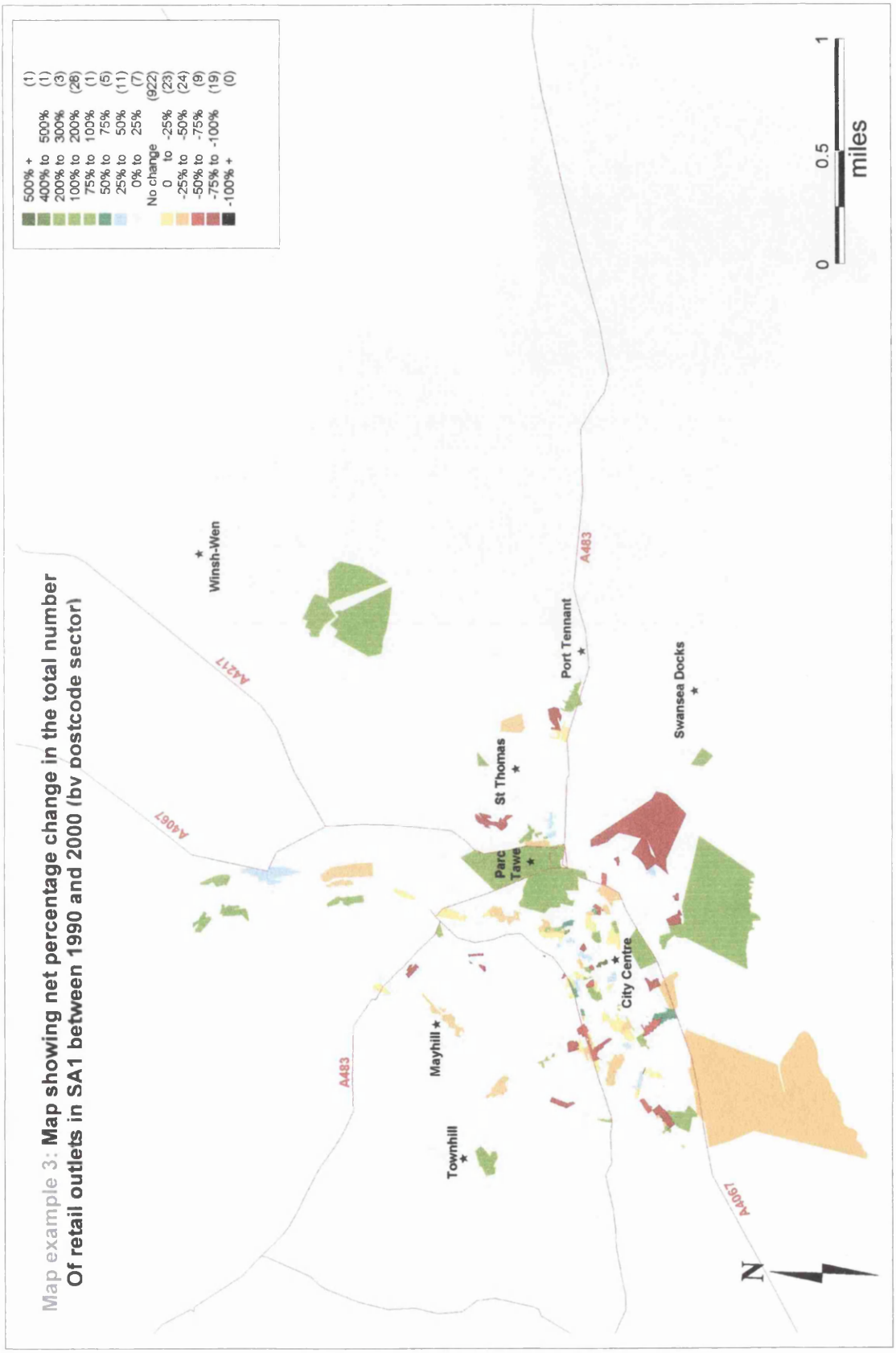
Dr Thomas stated that the problem with mapping urban change, along with other things, is that the maps can show the effects of change, but will never show the causes. That takes a more analytical approach.



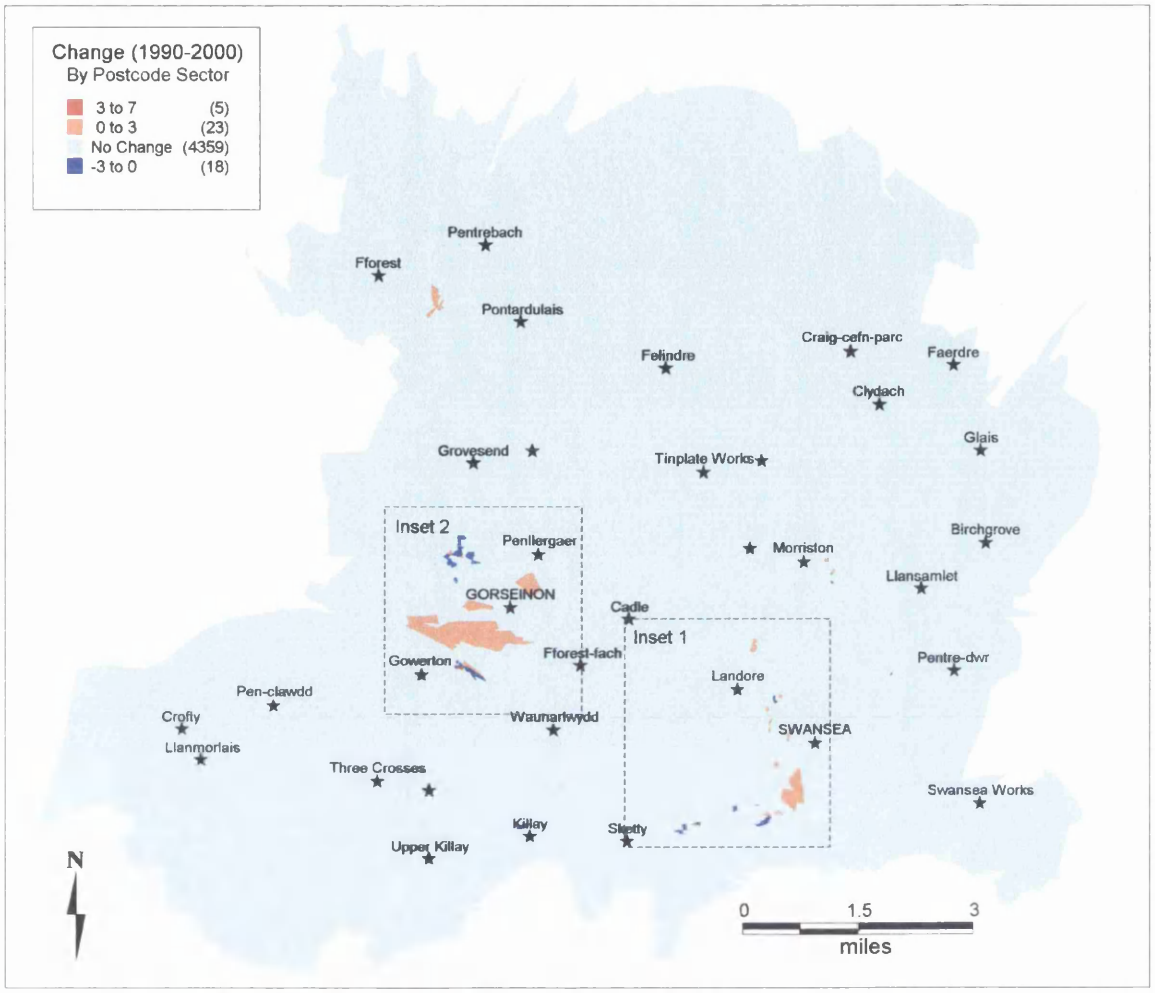
Map example 1: **Map showing postcode districts (red) postcode sectors (grey) within the study area**

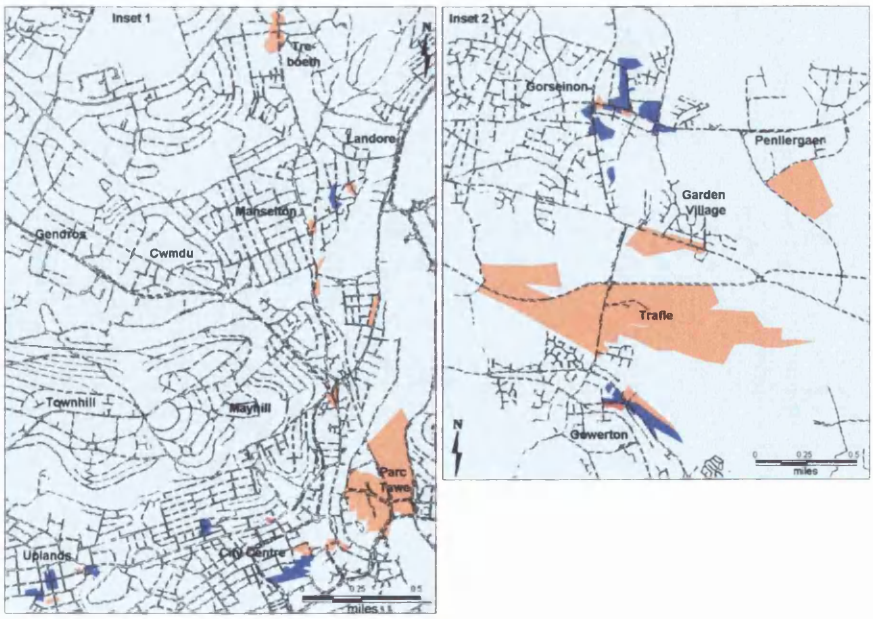
Map example 2: **Map of SA1 showing net change in the number of retail outlets between 1990 and 2000 (including inset map of the city centre)**

Map example 3: **Map showing net percentage change in the total number Of retail outlets in SA1 between 1990 and 2000 (by postcode sector)**



Map example 4: **Smaller scale map showing the entire study area (indicating net change in the number of retail warehouses between 1990 and 2000)**





Postcode	Average RV Change	Total RV Change	Total Net Change (1990-2000)						Net change total outlets	Net %age change (%)
			Shops	Retail WH	L/Epremises	Banks	Foodstores	Showrooms		
SA1 1DE	-850	-7200	-2	1	0	0	0	0	-1	-50
SA1 1DF	48005	506350	-3	7	0	0	0	0	4	67
SA1 1DG	3700	3700	0	0	0	0	0	0	0	0
SA1 1DL	77750	182000	1	0	0	0	0	0	1	100
SA1 1DW	-1075	-7000	0	0	0	-1	0	0	-1	-50
SA1 1DY	8825	17650	1	0	0	0	0	0	0	0
SA1 1DZ	-3612	-38125	-2	0	0	0	0	0	-2	-40
SA1 1EG	-1295	-26800	-3	0	0	0	0	0	-4	-57
SA1 1EQ	3850	7700	0	0	0	0	0	0	0	0
SA1 1HE	514	6925	0	0	0	1	0	0	1	20
SA1 1HW	36248	300750	-1	0	0	0	0	0	-1	-10
SA1 1HY	11000	11000	0	0	0	0	0	0	0	0
SA1 1HS	-69	-275	0	0	0	0	0	0	0	0
SA1 1HU	1925	5400	1	0	0	0	0	0	1	100
SA1 1HY	2954	27080	3	0	0	0	0	-1	2	67
SA1 1HZ	3472	31250	0	0	0	-1	0	1	0	0
SA1 1JQ	42200	84400	0	0	-1	0	0	1	0	0
SA1 1JE	500	300	0	0	0	0	0	0	0	0
SA1 1JF	2944	23550	-2	0	1	1	0	0	0	0
SA1 1LE	1179	50550	2	0	1	0	0	0	3	75
SA1 1LF	-3900	70300	3	0	0	0	0	0	3	100
SA1 1LG	1463	-63650	1	0	-5	0	0	0	-4	-50
SA1 1LN	2680	-2250	-5	0	1	0	0	-1	-5	-36
SA1 1LT	-260	-1300	-1	0	1	0	0	0	0	0
SA1 1LW	1482	12575	2	0	-1	0	0	0	1	20
SA1 1LZ	-370	-2225	-3	2	1	0	0	0	0	0
SA1 1NE	7018	24025	-3	0	2	0	0	0	-1	-20
SA1 1NG	-3850	-35350	-2	0	-1	0	0	0	-3	-50
SA1 1NN	322	2250	1	0	0	0	0	-1	0	0
SA1 1NW	-530	-2650	1	0	-1	0	0	0	0	0
SA1 1NY	558	-19975	0	0	-2	0	0	0	-2	-29
SA1 1NZ	12470	62350	-3	0	3	0	0	0	0	0
SA1 1PE	2200	8800	2	0	-2	0	0	0	0	0

Postcode	Average RV Change	Total RV Change	Total Net Change (1990-2000)						Net change total outlets	Net %age change (%)
			Shops	Retail WH	L/Epremises	Banks	Foodstores	Showrooms		
SA1 1QP	1265	-3190	-2	0	0	-1	0	0	-3	-75
SA1 1RN	-5	-5	0	0	0	0	0	0	0	0
SA1 1RR	4000	8000	-1	0	1	0	0	0	0	0
SA1 1TT	8000	8000	-1	0	1	0	0	0	0	0
SA1 1TY	3625	7250	0	0	0	0	0	0	0	0
SA1 1UG	-87	3425	0	0	0	1	0	0	1	33
SA1 2AB	1500	1500	1	0	-1	0	0	0	0	0
SA1 2AE	2750	2750	0	0	0	0	0	0	0	0
SA1 2AF	2275	4550	1	0	0	0	0	-1	0	0
SA1 2AL	71902	1591200	5	1	2	0	0	0	8	160
SA1 2BH	51300	-450	0	0	0	0	0	0	0	0
SA1 2BQ	952	5710	-1	0	1	0	0	1	0	0
SA1 2ES	-462	-10450	1	0	-1	0	0	-1	-2	-20
SA1 2EU	-300	-300	1	0	-1	0	0	0	0	0
SA1 2HE	190	950	3	0	0	0	0	0	0	0
SA1 2HL	1850	1850	-2	0	-1	0	0	0	0	0
SA1 2HR	3750	3750	-1	0	0	0	0	0	0	0
SA1 2HW	-262	-1575	-4	2	2	0	0	0	0	0
SA1 2JG	11650	11650	0	0	0	0	0	0	0	0
SA1 2JT	175	5200	1	0	0	0	0	0	1	33
SA1 2LF	850	850	-1	0	0	1	0	0	0	0
SA1 2LG	1117	-375	1	0	-1	-1	0	1	-1	-33
SA1 2PE	502	1005	-2	0	1	0	0	0	0	0
SA1 2PT	50	100	0	-1	1	0	0	1	0	0
SA1 2QA	-25	-25	-1	0	1	0	0	0	0	0
SA1 2QD	41997	83995	0	0	0	0	0	0	0	0
SA1 2QH	-248	-495	-2	1	0	0	0	0	0	0
SA1 2QJ	1200	1200	-1	0	1	0	1	0	0	0
SA1 3AA	23788	243200	1	1	-1	0	0	0	1	14
SA1 3AE	46820	234100	0	0	-1	0	0	0	0	0
SA1 3AF	53375	427000	-4	2	1	0	0	0	0	0
SA1 3AG	92000	92000	0	0	0	0	0	0	0	0
SA1 3AN	4540	22700	0	0	0	0	0	0	0	0

Postcode	Average RV Change	Total RV Change	Total Net Change (1990-2000)						Net change total outlets	Net %age change (%)
			Shops	Retail WH	L/Epremises	Banks	Foodstores	Showrooms		
SA1 3AQ	9723	116675	-2	0	1	1	0	0	0	0
SA1 3AW	3050	3050	1	0	-1	0	0	0	0	0
SA1 3AY	2393	16750	-3	0	-1	0	0	0	0	0
SA1 3AZ	1950	1900	1	0	1	0	0	0	-1	-25
SA1 3BB	-625000	-625000	0	0	0	0	0	0	-1	-100
SA1 3BE	99870	778300	-2	0	1	0	0	1	-1	-11
SA1 3BG	2242	13450	3	0	-2	0	0	-1	0	0
SA1 3BH	3470	17350	1	0	-1	0	0	0	0	0
SA1 3BJ	6865	48050	-2	0	2	-1	0	0	0	0
SA1 3BL	31858	447550	2	0	-2	1	0	0	1	8
SA1 3BN	148700	148700	0	0	0	0	1	0	0	0
SA1 3BQ	3075	12300	0	0	0	0	0	0	0	0
SA1 3BR	38250	269500	1	0	0	0	0	0	1	33
SA1 3BS	57012	228050	-1	0	0	0	0	0	0	0
SA1 3BP	24000	24000	0	0	0	0	0	0	0	0
SA1 3DH	11869	157100	3	0	-1	0	0	0	2	25
SA1 3DJ	3062	12250	0	0	0	0	0	0	0	0
SA1 3DW	7450	22350	-1	0	1	0	0	0	0	0
SA1 3DZ	19600	117600	0	0	0	0	0	0	0	0
SA1 3ES	12750	12750	0	0	0	0	0	0	0	0
SA1 3EF	-22200	-510200	-4	0	0	-2	0	0	-7	-64
SA1 3EH	20314	230450	4	0	0	0	0	0	5	250
SA1 3EN	-57	-11800	-1	0	0	0	0	0	-1	-17
SA1 3EP	-9133	-27400	0	0	0	0	0	0	0	0
SA1 3EQ	13300	13300	-1	0	1	0	0	0	0	0
SA1 3EW	-3700	-3700	0	0	0	0	0	0	0	0
SA1 3EZ	800	1600	0	0	0	0	0	0	0	0
SA1 3HE	-1525	-1525	0	0	0	0	0	0	0	0
SA1 3HT	1365	6825	0	0	0	0	0	0	0	0
SA1 3HZ	1525	6100	-1	0	1	0	0	0	0	0
SA1 3JA	-10797	-64150	-1	0	0	0	0	1	-1	-20
SA1 3JE	238	-975	-1	0	0	0	0	0	-1	-33
SA1 3JF	2075	4150	1	0	-1	0	0	0	0	0

Postcode	Average RV Change	Total RV Change	Total Net Change (1990-2000)						Net change total outlets	Net %age change (%)
			Shops	Retail WH	L/Epremises	Banks	Foodstores	Showrooms		
SA1 3JG	-10340	-243075	-2	0	0	0	0	-1	-2	-15
SA1 3JJ	1633	4900	-1	0	1	0	0	0	0	0
SA1 3JP	600	3000	1	0	0	0	0	-1	0	0
SA1 3JS	562	1125	0	0	0	0	0	0	0	0
SA1 3JW	-600	-1800	0	0	0	0	0	0	0	0
SA1 3JX	575	1150	0	0	0	0	0	0	0	0
SA1 3JY	500	1500	0	0	0	0	0	0	0	0
SA1 3JZ	1750	3500	-1	0	1	0	0	0	0	0
SA1 3LG	-5202	-115750	0	0	-1	0	0	0	-1	-6
SA1 3LH	19475	38950	0	0	0	0	0	0	0	0
SA1 3LP	55200	165600	0	0	0	0	0	0	0	0
SA1 3LW	18050	18050	-1	0	1	0	0	1	0	0
SA1 3LZ	-21700	-21700	-1	0	1	0	0	0	0	0
SA1 3ND	-300	-300	-3	0	-1	0	0	-1	0	0
SA1 3PP	35573	129050	-4	1	1	0	0	0	-1	-20
SA1 3QE	7182	79000	0	0	0	0	0	0	0	0
SA1 3QN	65092	272500	1	0	-1	1	0	3	1	33
SA1 3QQ	6475	38850	1	0	-1	0	0	0	0	0
SA1 3QS	1350	2700	0	0	1	-1	0	0	0	0
SA1 3QW	82965	2737850	4	-3	-2	-1	0	-1	0	0
SA1 3RT	-83	-2750	-1	0	0	0	0	0	-1	-33
SA1 3RW	12450	37350	-1	0	0	1	0	0	0	0
SA1 3SS	2000	2000	1	0	0	-1	0	0	0	0
SA1 3TA	3554	12400	0	0	1	0	0	0	1	50
SA1 3TB	-1775	-8625	-1	0	-1	0	0	0	-2	-67
SA1 3TT	3550	3550	0	0	0	0	0	0	0	0
SA1 3TX	750	750	0	0	0	0	0	0	0	0
SA1 3TZ	475	475	0	0	0	0	0	0	0	0
SA1 3UB	-975	-1950	0	0	0	0	0	0	0	0
SA1 3UD	650	1650	0	0	0	0	0	0	0	0
SA1 3UJ	2050	2050	0	0	0	0	0	0	0	0
SA1 3UL	5708	2950	-1	0	0	0	0	0	-1	-33
SA1 3US	3958	11875	0	0	0	0	0	0	0	0

Postcode	Average RV Change	Total RV Change	Total Net Change (1990-2000)						Net change total outlets	Net %age change (%)
			Shops	Retail WH	L/Epremises	Banks	Foodstores	Showrooms		
SA1 3UT	2000	2000	0	0	0	0	0	0	0	0
SA1 3UW	2487	4975	0	0	0	0	0	0	0	0
SA1 3XA	-6883	-20650	0	0	0	0	0	0	0	0
SA1 3XB	-750	-750	0	0	0	0	0	0	0	0
SA1 4AE	4850	38800	-1	0	1	0	0	0	0	0
SA1 4AN	245	10250	1	0	0	0	0	0	1	14
SA1 4AP	419	-13200	-3	0	0	0	1	1	-3	-20
SA1 4AQ	4100	24600	0	0	0	0	0	2	0	0
SA1 4AW	247	-5850	-1	0	0	0	0	0	-1	-17
SA1 4AY	4028	36250	-1	0	-1	0	0	0	0	0
SA1 4AZ	-1785	-7140	-1	0	1	0	0	-2	0	0
SA1 4BB	925	6725	2	0	-1	1	0	-1	1	33
SA1 4BD	554	4430	0	0	1	-1	0	0	0	0
SA1 4BE	873	10475	-1	0	0	1	0	0	0	0
SA1 4BG	275	1100	1	0	-1	0	0	0	0	0
SA1 4BL	1000	1000	0	0	0	0	1	0	0	0
SA1 4BQ	2397	5075	-1	0	0	0	0	0	-1	-17
SA1 4DE	-25	-25	0	0	0	0	0	0	0	0
SA1 4EH	6792	51500	-2	0	2	0	0	0	1	33
SA1 4EW	1350	2700	1	0	-1	0	0	0	0	0
SA1 4HF	525	525	0	0	0	0	0	0	0	0
SA1 4HR	175	175	0	0	0	0	0	0	0	0
SA1 4HS	3475	13900	3	0	0	0	0	0	0	0
SA1 4JE	906	10875	1	0	-1	0	0	0	0	0
SA1 4JG	1016	3050	-1	0	1	0	0	0	0	0
SA1 4JH	2430	2950	-2	0	1	0	0	0	-1	-17
SA1 4JJ	-413	-3300	-1	0	1	0	0	0	0	0
SA1 4JP	-250	-2125	-1	0	0	0	0	0	-1	-50
SA1 4JQ	946	18400	1	0	0	0	0	0	1	33
SA1 4JR	287	-1200	0	0	-1	0	0	0	-1	-50
SA1 4LH	5569	-7425	-3	0	0	0	0	0	-3	-75
SA1 4LL	150	150	0	0	0	0	0	0	0	0
SA1 4LN	225	450	0	0	0	0	0	0	0	0

Postcode	Average RV Change	Total RV Change	Total Net Change (1990-2000)						Net change total outlets	Net %age change (%)
			Shops	Retail WH	L/Epremises	Banks	Foodstores	Showrooms		
SA1 4LS	0	0	0	0	0	0	0	0	0	0
SA1 4LU	342	1025	-1	0	1	0	0	0	0	0
SA1 4LX	100	400	0	0	0	0	0	0	0	0
SA1 4LZ	11887	-1725	0	0	0	-1	0	0	-1	-50
SA1 4PT	3200	3200	0	0	0	0	0	0	0	0
SA1 5AF	-5775	-79700	-1	0	-1	-1	0	0	-3	-50
SA1 5AG	-646	-10900	-2	0	1	0	0	0	-1	-14
SA1 5AS	2450	7350	1	0	-1	0	1	0	0	0
SA1 5BY	27162	151900	0	0	1	0	0	0	1	25
SA1 5BZ	7750	23250	-1	0	1	0	-1	0	0	0
SA1 5DG	6525	-750	1	0	-1	0	0	0	0	0
SA1 5DQ	418	-3725	-3	0	0	0	0	0	-3	-60
SA1 5HE	3542	21250	-2	0	2	0	0	1	0	0
SA1 5HF	-1025	13250	1	0	0	0	0	0	1	25
SA1 5HG	7475	98500	-1	0	1	1	0	0	1	10
SA1 5HN	15867	17850	-1	0	-1	0	0	0	-1	-33
SA1 5HQ	6920	34600	0	0	1	0	0	-1	0	0
SA1 5HB	6750	6750	-1	0	1	0	0	0	0	0
SA1 5HW	-300	-300	0	0	0	0	0	0	0	0
SA1 5HX	-500	-500	0	0	0	0	0	0	0	0
SA1 5HJ	10800	10800	1	0	-1	0	0	0	0	0
SA1 5JB	2500	2500	0	0	0	0	0	0	0	0
SA1 5JJ	-29800	12100	0	0	-2	0	0	0	-2	-67
SA1 5JN	8400	8400	-1	0	1	0	0	0	0	0
SA1 5JW	33832	425350	1	0	1	0	0	0	2	22
SA1 5JZ	3200	3200	1	0	-1	0	0	0	0	0
SA1 5JY	2400	2400	0	0	0	0	0	0	0	0
SA1 5LE	5450	10900	1	0	-1	0	0	0	0	0
SA1 5LF	3250	3250	-1	0	1	0	0	0	0	0
SA1 5LG	2200	2200	0	0	0	0	0	0	0	0
SA1 5LQ	3675	7350	0	0	0	0	0	0	0	0
SA1 5LR	2650	2650	1	0	-1	0	0	0	0	0
SA1 5NE	-1133	-18000	-2	0	0	0	0	0	-2	-67

Postcode	Average RV Change	Total RV Change	Total Net Change (1990-2000)						Net change total outlets	Net %age change (%)
			Shops	Retail WH	L/Epremises	Banks	Foodstores	Showrooms		
SA1 5NF	0	-9000	-1	0	0	0	0	0	-1	-50
SA1 5NG	23717	-8850	0	0	-1	0	0	0	-1	-33
SA1 5NN	22137	-7450	-3	0	0	0	0	0	-3	-75
SA1 5NQ	1958	-4100	-1	0	0	0	0	0	-1	-25
SA1 5NW	1275	-650	1	0	-1	-1	0	0	-1	-25
SA1 5RG	20600	9200	0	0	-1	0	0	0	-1	-50
SA1 5SE	-465	-7500	-1	0	0	0	0	0	-1	-17
SA1 5SF	-1686	-23450	-2	0	0	0	0	1	-2	-22
SA1 5SG	-1117	1100	1	0	1	0	0	0	1	50
SA1 5SN	-3233	-450	3	0	-2	0	0	0	1	50
SA1 5SQ	-150	-150	-1	0	0	0	0	0	0	0
SA1 5SW	-2450	-18100	-2	0	0	0	0	0	-2	-50
SA1 5TW	-1175	-2350	1	0	0	0	0	0	0	0
SA1 5TY	-559	-1675	0	0	0	0	0	-1	-1	-25
SA1 5TZ	-1833	-9550	-2	0	1	0	0	1	-1	-33
SA1 5UE	-1315	-11300	-5	3	0	0	0	1	-1	-20
SA1 5TZ	7000	7000	0	0	0	0	0	0	0	0
SA1 6BG	705	2850	0	-2	0	0	0	0	-1	-13
SA1 6BQ	125	125	0	0	-1	0	0	0	0	0
SA1 6BW	50	50	0	0	0	0	0	0	0	0
SA1 6EP	325	325	0	0	0	0	0	0	0	0
SA1 6EQ	300	300	0	0	0	0	0	0	0	0
SA1 6ER	325	325	0	0	0	0	0	0	0	0
SA1 6EU	280	280	-1	0	1	0	0	0	0	0
SA1 6ET	575	1150	-1	0	1	0	0	0	0	0
SA1 6HN	405	405	0	0	0	0	0	0	0	0
SA1 6HP	375	375	0	0	0	0	0	0	0	0
SA1 6HW	650	650	0	0	0	0	0	0	0	0
SA1 6JE	380	760	0	0	0	0	0	0	0	0
SA1 6JQ	475	1425	1	0	-1	0	0	0	0	0
SA1 6JY	-33	-100	0	0	0	0	0	0	0	0
SA1 6JZ	-215	-6150	1	0	-2	-1	0	0	-2	-33
SA1 6LA	158	475	1	0	0	-1	0	1	0	0

Postcode	Average RV Change	Total RV Change	Total Net Change (1990-2000)						Net change total outlets	Net %age change (%)
			Shops	Retail WH	L/Epremises	Banks	Foodstores	Showrooms		
SA1 6PA	263	525	0	0	0	0	0	0	0	0
SA1 6PH	1150	4250	1	0	0	0	0	0	1	100
SA1 6RT	-388	-1550	-2	0	1	0	0	0	0	0
SA1 6SZ	-321	-2250	1	0	-1	0	0	0	0	0
SA1 6UQ	-113	-1450	0	0	-1	0	0	0	-1	-50
SA1 6XS	8500	8500	0	0	0	0	0	0	0	0
SA1 6XT	625	625	0	0	0	0	0	0	0	0
SA1 7AA	1150	2300	0	0	0	0	0	0	0	0
SA1 7AN	-1075	-2150	0	0	1	0	0	-1	0	0
SA1 7AT	-200	-200	1	0	0	-1	0	0	0	0
SA1 7AU	-25	-25	0	0	0	0	0	-1	0	0
SA1 7AW	-100	-100	1	0	0	-1	0	0	0	0
SA1 7DA	800	1600	-1	0	0	0	0	0	0	0
SA1 7DG	-474	-1895	-1	0	0	1	0	0	0	0
SA1 7DL	-150	-150	0	0	0	0	0	0	0	0
SA1 7DN	-110	-110	0	0	0	0	0	0	0	0
SA1 7DW	5000	5000	0	0	0	0	0	0	0	0
SA1 7EN	-375	-750	0	0	0	0	0	0	0	0
SA1 7EW	3300	6600	2	-2	0	0	0	0	0	0
SA1 7HD	-4200	-4200	0	0	0	0	0	0	0	0
SA1 7HH	0	0	0	0	0	0	0	0	0	0
SA1 7HR	-100	-100	0	0	0	0	0	0	0	0
SA1 7JZ	175	175	0	0	0	0	0	0	0	0
SA1 7LD	-350	-350	0	0	0	0	0	0	0	0
SA1 7LJ	25	25	0	0	0	0	0	0	0	0
SA1 8AT	392	1175	0	0	0	0	0	0	0	0
SA1 8BT	263	5550	1	0	0	0	0	0	1	25
SA1 8DJ	-2913	-7150	-1	0	0	0	0	0	-1	-50
SA1 8DW	-525	-525	0	0	0	0	0	0	0	0
SA1 8HP	889625	636250	-1	0	0	0	0	0	-1	-50
SA1 8JF	-1567	-4700	3	0	-3	0	0	0	0	0
SA1 8JG	171	1025	0	0	0	0	0	0	0	0
SA1 8JN	1200	1200	0	0	0	0	0	0	0	0

Postcode	Average RV Change	Total RV Change	Total Net Change (1990-2000)						Net change total outlets	Net %age change (%)
			Shops	Retail WH	L/Epremises	Banks	Foodstores	Showrooms		
SA1 8JQ	697	8725	3	0	-4	0	0	0	-1	-6
SA1 8JU	2192	6575	0	0	0	0	0	0	3	100
SA1 8LB	-25	-25	0	0	0	0	0	1	0	0
SA1 8LQ	-10	-10	0	0	0	0	0	0	0	0
SA1 8NB	0	0	0	0	0	0	0	1	0	0
SA1 8NF	-100	-300	0	0	-1	0	0	0	0	0
SA1 8NT	50	50	0	0	0	0	0	0	0	0
SA1 8PA	38925	77850	-2	0	1	0	0	0	0	0
SA1 8JG	1500	1500	0	0	0	0	0	0	0	0
SA2 0AA	164	4000	2	0	-1	0	0	0	1	25
SA2 0BT	8238	16475	0	0	0	0	0	0	0	0
SA2 0BU	0	0	0	0	0	0	0	0	0	0
SA2 0DR	575	575	0	0	0	0	0	0	0	0
SA2 0DS	-163	-2150	-1	0	0	0	0	0	-1	-50
SA2 0DZ	0	0	0	0	0	0	0	1	0	0
SA2 0EA	-175	-175	0	0	0	0	0	0	0	0
SA2 0EU	63	125	0	0	0	0	0	0	0	0
SA2 0EX	-341	7900	-1	0	0	0	0	0	0	0
SA2 0EY	2217	6650	0	0	0	0	0	0	0	0
SA2 0EZ	5496	9800	0	0	0	0	0	-1	-1	-25
SA2 0GB	8200	8200	0	0	0	0	0	0	0	0
SA2 0HB	1863	7450	-2	0	2	0	1	0	0	0
SA2 0HD	3238	12950	-2	3	0	0	0	0	0	0
SA2 0HP	2900	2900	-1	1	0	0	0	0	0	0
SA2 0HS	-206	-825	2	1	0	0	-1	0	3	300
SA2 0HT	88	175	0	-1	-1	0	1	2	0	0
SA2 0HU	0	0	0	-2	1	0	0	0	0	0
SA2 0HY	-800	-800	0	-1	1	0	0	0	0	0
SA2 0NP	4357	34850	-1	-1	0	0	-1	0	0	0
SA2 0NX	3210	-3850	0	0	0	0	0	-1	-2	-40
SA2 0NS	5000	5000	0	0	0	0	0	0	0	0
SA2 0PA	5925	35550	3	0	-3	0	0	0	0	0
SA2 0PG	2988	18750	-2	0	0	0	0	0	-1	-10

Postcode	Average RV Change	Total RV Change	Total Net Change (1990-2000)						Net change total outlets	Net %age change (%)
			Shops	Retail WH	L/Epremises	Banks	Foodstores	Showrooms		
SA2 0PQ	3750	3750	0	0	0	0	0	1	0	0
SA2 0PX	2000	2000	0	0	0	0	0	0	0	0
SA2 0QB	-167	-500	-2	0	1	0	0	0	-1	-25
SA2 0QR	213	5125	1	0	-1	0	0	0	1	17
SA2 0UH	3500	3500	-1	0	1	0	0	0	0	0
SA2 0UU	-295	-1475	-1	0	1	0	0	0	0	0
SA2 0UY	-625	-1250	2	0	-2	0	0	0	0	0
SA2 0XA	500	500	0	0	0	0	0	0	0	0
SA2 0YB	-25	-25	-1	0	1	0	0	0	0	0
SA2 7AA	43000	43000	0	0	0	0	0	0	0	0
SA2 7AE	3300	6600	2	0	-1	0	0	-1	0	0
SA2 7AJ	5815	69775	-1	0	1	0	0	0	0	0
SA2 7AL	2345	4150	-5	4	0	0	0	0	-1	-20
SA2 7AN	8808	54750	0	-3	1	0	0	0	-2	-20
SA2 7DR	1975	3950	0	0	0	0	0	0	0	0
SA2 7DZ	1418	1150	-4	0	3	0	0	0	-1	-20
SA2 7EE	-45	-225	1	0	-1	0	0	0	0	0
SA2 7EX	-2425	-6100	-2	0	0	1	0	0	-1	-50
SA2 7HE	-2700	-2700	0	0	0	0	0	0	0	0
SA2 7HQ	75	75	0	0	0	0	0	0	0	0
SA2 7PN	-150	-150	0	0	0	0	0	1	0	0
SA2 7QA	0	0	-1	0	1	0	0	0	0	0
SA2 7QU	-200	-200	0	0	0	0	0	0	0	0
SA2 7SS	34000	34000	-1	0	0	0	0	0	0	0
SA2 7TA	209	625	0	0	0	0	0	0	0	0
SA2 7TD	-350	-350	0	0	0	0	0	0	0	0
SA2 7TR	413	825	0	0	0	0	0	0	0	0
SA2 8JH	4600	4600	0	0	0	0	0	0	0	0
SA2 8JJ	1592	17425	1	0	0	0	0	0	1	14
SA2 8QD	9750	9750	1	0	-1	0	0	0	0	0
SA2 9AE	2666	16000	0	0	0	0	0	0	0	0
SA2 9AH	2850	2850	0	0	0	0	0	0	0	0
SA2 9AQ	4230	21150	-1	0	0	0	0	0	0	0

Postcode	Average RV Change	Total RV Change	Total Net Change (1990-2000)						Net change total outlets	Net %age change (%)
			Shops	Retail WH	L/Epremises	Banks	Foodstores	Showrooms		
SA2 9BL	1150	1100	-1	0	0	0	0	0	-1	-25
SA2 9BN	875	2625	0	0	0	0	0	1	0	0
SA2 9BT	19500	19500	0	0	0	0	0	0	0	0
SA2 9BW	2042	-750	-1	0	0	0	0	0	-1	-33
SA2 9BX	2373	21750	1	0	0	0	0	-1	1	14
SA2 9BZ	4371	42000	1	0	0	0	0	0	1	17
SA2 9DB	375	750	0	0	0	0	0	0	0	0
SA2 9DE	1293	25850	0	0	0	0	0	0	0	0
SA2 9DF	2958	5300	-2	0	0	0	0	0	-2	-33
SA2 9DJ	1550	1000	-1	0	0	0	0	0	-1	-33
SA2 9DQ	-150	-150	0	0	0	0	0	0	0	0
SA2 9EQ	886	975	-1	0	0	0	0	0	-1	-17
SA2 9JH	2550	2550	0	0	0	0	0	0	0	0
SA4 1AB	900	1800	1	0	0	-1	0	0	0	0
SA4 1AE	0	0	0	0	0	0	0	0	0	0
SA4 1AQ	-9200	-9200	0	0	0	0	0	0	0	0
SA4 1DY	8500	8500	-1	0	1	0	0	0	0	0
SA4 1EE	1201	2400	-2	0	2	0	1	0	0	0
SA4 1EF	27700	27700	0	0	0	0	0	0	0	0
SA4 1EJ	0	0	-1	0	0	0	0	0	0	0
SA4 1GE	22413	255950	0	0	2	-1	0	0	2	100
SA4 1HU	15	45	3	0	-3	0	0	0	0	0
SA4 1JE	-50	-50	1	0	-1	0	0	0	0	0
SA4 1JF	10	10	1	0	-1	0	0	0	0	0
SA4 1JP	5750	5750	1	0	-1	0	0	0	0	0
SA4 1LH	500	500	0	0	0	0	0	0	0	0
SA4 1LQ	5938	11875	0	0	0	0	0	0	0	0
SA4 1PG	-125	-125	0	0	0	0	0	0	0	0
SA4 1PQ	-237	1275	0	0	0	0	0	0	0	0
SA4 1RA	3758	22550	-2	0	2	0	0	0	0	0
SA4 1RE	259	-200	2	0	-4	0	1	0	-2	-14
SA4 1RH	100	100	0	0	0	0	1	0	0	0
SA4 1SR	547	2600	-3	0	2	0	0	0	-1	-11

Postcode	Average RV Change	Total RV Change	Total Net Change (1990-2000)						Net change total outlets	Net %age change (%)
			Shops	Retail WH	L/Epremises	Banks	Foodstores	Showrooms		
SA4 1SS	176	-245	-2	0	0	0	0	0	-1	-11
SA4 1ST	2878	17265	1	0	-2	0	0	1	0	0
SA4 1SY	289	-3725	0	0	-1	0	0	0	-2	-29
SA4 1SZ	-17079	-100	-2	0	-1	0	0	0	-2	-25
SA4 1TH	2177	4600	-7	2	0	0	0	0	-4	-36
SA4 1TL	-1300	-1300	0	1	0	0	0	-1	0	0
SA4 1WF	161500	161500	0	1	0	0	0	-1	0	0
SA4 3AB	59600	119200	-2	2	0	0	0	0	0	0
SA4 3AG	700	3175	2	-1	0	0	0	0	1	100
SA4 3AJ	2150	2150	-1	1	0	0	0	0	0	0
SA4 3BN	2309	7175	0	-1	0	0	0	1	-2	-25
SA4 3BR	280	1675	0	0	0	0	0	0	0	0
SA4 3BS	-685	-3425	0	0	0	0	0	0	0	0
SA4 3BW	803	16100	-4	3	1	0	0	0	2	17
SA4 3DP	450	450	0	0	0	0	0	0	0	0
SA4 3EA	-2400	-2400	0	0	0	0	0	0	0	0
SA4 3ED	925	1850	-1	0	0	1	0	0	0	0
SA4 3EJ	950	950	0	0	0	0	0	0	0	0
SA4 3EP	0	0	0	0	0	0	0	0	0	0
SA4 3FG	-500	-500	0	0	0	0	0	0	0	0
SA4 3JJ	-975	-975	0	0	0	0	0	0	0	0
SA4 3JQ	-4750	-21500	-1	0	0	0	0	0	-1	-50
SA4 3LL	-3500	-3500	0	0	0	0	0	0	0	0
SA4 3PP	9501	19000	1	0	-1	0	0	0	0	0
SA4 3RA	5150	5150	1	0	-1	0	0	0	0	0
SA4 3RS	-18	-37	0	0	0	0	0	0	0	0
SA4 3RR	650	650	0	0	0	0	0	0	0	0
SA4 3SW	3425	6850	0	0	0	0	0	0	0	0
SA4 3XE	-2550	-2550	0	0	0	0	0	0	0	0
SA4 3XN	88	175	1	0	0	-1	0	0	0	0
SA4 3XU	-450	-450	1	0	0	0	0	-1	0	0
SA4 3YE	-4	-2725	-1	0	0	0	0	0	-1	-20
SA4 3YF	-598	-2390	0	0	0	0	0	0	0	0

Postcode	Average RV Change	Total RV Change	Total Net Change (1990-2000)						Net change total outlets	Net %age change (%)
			Shops	Retail WH	L/Epremises	Banks	Foodstores	Showrooms		
SA4 3YJ	-600	-600	0	0	0	0	0	0	0	0
SA4 3YL	-500	-500	0	0	0	0	0	1	0	0
SA4 3YR	-200	-200	1	0	-1	0	0	0	0	0
SA4 4AA	647	425	0	-2	1	0	-1	-1	-2	-13
SA4 4AD	-950	-950	-1	0	0	0	0	0	0	0
SA4 4AG	2025	4050	0	0	0	0	1	1	0	0
SA4 4AQ	-63	-115	1	0	-1	0	0	0	0	0
SA4 4AS	-35150	-70300	0	0	0	0	0	0	0	0
SA4 4BL	979	9450	-5	1	0	1	0	0	-1	-6
SA4 4BP	1409	23950	2	-2	0	0	0	0	0	0
SA4 4BR	2958	58250	1	-1	3	0	0	-1	2	13
SA4 4BT	2861	24575	-3	1	1	0	0	1	-1	-9
SA4 4BU	-112	2375	1	0	0	0	0	0	1	100
SA4 4BX	660	7650	4	-2	-3	0	0	-1	-1	-6
SA4 4BY	-2100	25800	1	-1	0	0	0	0	0	0
SA4 4DJ	49925	199700	2	-2	0	0	0	0	0	0
SA4 4FE	1107	12175	-2	0	3	-1	0	1	0	0
SA4 4FJ	75	75	-1	0	1	0	0	1	0	0
SA4 4FQ	175	175	1	0	-1	0	0	2	0	0
SA4 4FU	-25	-25	-1	0	0	0	0	0	0	0
SA4 4GY	0	0	-1	0	0	0	0	0	0	0
SA4 4HE	18300	37975	-1	0	0	0	0	0	1	100
SA4 4HQ	413	825	-2	2	0	0	0	0	0	0
SA4 4LL	25800	25800	0	0	0	0	1	0	0	0
SA4 4YE	42	125	0	0	0	0	0	0	0	0
SA4 4YF	-55	915	0	0	1	0	0	0	1	100
SA4 4BX	-185000	-185000	0	0	0	0	0	0	0	0
SA4 6QD	-25	-25	0	0	0	0	0	0	0	0
SA4 6RP	533	2130	0	0	0	0	0	0	0	0
SA4 6RT	3000	3000	0	0	0	0	0	0	0	0
SA4 6RZ	750	750	0	0	0	0	0	0	0	0
SA4 6SR	2937	11750	0	0	0	0	0	0	0	0
SA4 6TR	700	700	0	0	0	0	0	0	0	0

Postcode	Average RV Change	Total RV Change	Total Net Change (1990-2000)						Net change total outlets	Net %age change (%)
			Shops	Retail WH	L/Epremises	Banks	Foodstores	Showrooms		
SA4 6TS	233	700	-1	0	1	0	0	0	0	0
SA4 6TU	-200	-200	0	0	0	0	0	0	0	0
SA5 4AE	2457	9825	1	0	-1	0	0	0	0	0
SA5 4AN	108	325	-2	0	2	0	0	0	0	0
SA5 4BA	272986	402350	-6	0	-1	0	0	0	-7	-64
SA5 4BP	-125	-125	-1	0	1	0	0	0	0	0
SA5 4BR	-5	-5	0	0	0	0	0	0	0	0
SA5 4BU	1650	1650	1	0	-1	0	0	1	0	0
SA5 4DL	34074	254250	1	0	3	0	0	0	4	133
SA5 4SL	876	1750	1	0	-1	0	0	0	0	0
SA5 4SN	-38	-75	1	0	-2	0	0	0	0	0
SA5 4SS	-50	-50	0	0	0	0	0	0	0	0
SA5 4SU	13250	13250	0	0	0	0	0	0	0	0
SA5 4SX	0	0	1	0	0	0	0	-1	0	0
SA5 4TL	-300	-300	0	0	0	0	0	0	0	0
SA5 4TQ	14800	14800	-1	0	1	0	0	0	0	0
SA5 5AE	-49117	-329700	-4	0	-1	0	0	0	-5	-83
SA5 5AH	-194	3300	2	0	0	-1	0	0	1	14
SA5 5AU	-25	-50	1	0	-1	0	0	0	0	0
SA5 5AW	200	200	-1	0	1	0	0	0	0	0
SA5 5BH	0	0	-2	0	-1	0	0	0	0	0
SA5 5EG	475	1425	1	0	1	0	0	0	0	0
SA5 5ET	-100	-100	-1	0	0	0	0	0	0	0
SA5 5EY	250	500	0	0	0	0	0	0	0	0
SA5 5LN	276	1100	-1	0	1	0	0	0	0	0
SA5 5PY	488	-2525	-1	0	0	0	0	0	-1	-50
SA5 7AH	-150	-150	0	0	0	0	0	0	0	0
SA5 7BA	5475	10950	0	0	0	0	0	0	0	0
SA5 7BD	-530	-700	-1	0	1	0	0	0	0	0
SA5 7DD	2900	2900	0	0	0	0	0	0	0	0
SA5 7HR	0	0	0	0	0	0	0	0	0	0
SA5 7JA	7000	7000	0	0	0	0	0	0	0	0
SA5 7ND	3450	3450	0	0	0	0	0	0	0	0

Postcode	Average RV Change	Total RV Change	Total Net Change (1990-2000)						Net change total outlets	Net %age change (%)
			Shops	Retail WH	L/Epremises	Banks	Foodstores	Showrooms		
SA5 8AB	17200	68800	1	0	0	-1	0	0	0	0
SA5 8AW	0	0	0	0	0	0	0	0	0	0
SA5 8AY	13	25	0	0	0	0	0	0	0	0
SA5 8BA	6853	16450	-1	0	0	0	0	0	-1	-20
SA5 8EG	-700	-700	0	0	0	0	0	0	0	0
SA5 8EH	-25	-25	-1	0	1	0	0	0	0	0
SA5 8EQ	0	0	0	0	0	0	0	0	0	0
SA5 8EZ	20	-1235	-1	0	0	0	0	0	-1	-33
SA5 8HR	8850	110450	7	0	1	0	0	0	8	800
SA5 8HS	-2025	-36200	-5	0	0	0	0	0	-5	-50
SA5 8JN	113713	216275	-4	0	0	0	0	0	-4	-67
SA5 8LA	6625	6625	0	0	0	0	0	0	0	0
SA5 8LD	6150	15750	1	0	0	0	0	0	1	100
SA5 8LL	258450	13400	-1	0	0	0	0	0	-1	-50
SA5 8NN	-3450	-3450	0	0	0	0	0	0	0	0
SA5 8NS	2575	950	-2	0	1	0	0	0	-1	-50
SA5 8PD	-6322	-7335	4	0	0	0	0	0	4	200
SA5 8PG	14106	-4025	-2	0	-1	0	0	0	-3	-75
SA5 8PJ	875	875	0	0	0	0	0	0	0	0
SA5 8PN	-875	-875	0	0	0	0	0	1	0	0
SA5 8QF	-562	750	1	0	0	0	0	0	1	100
SA5 8QP	-325	-325	0	0	0	0	0	0	0	0
SA5 9AH	1638	15700	5	0	-1	0	0	0	5	500
SA5 9AU	5867	500	-4	0	0	0	0	0	-4	-67
SA5 9AW	-600	-600	0	0	0	0	0	0	0	0
SA5 9BH	2200	2200	0	0	0	0	0	0	0	0
SA5 9DY	-2006	3675	2	0	1	0	0	0	3	300
SA5 9EA	2788	6600	-1	0	0	0	0	1	-1	-25
SA5 9EB	750	1500	-1	0	0	0	0	0	-1	-33
SA5 9EE	6575	13150	1	0	-1	0	0	1	0	0
SA5 9EH	-3066	-6545	1	0	0	0	0	1	2	67
SA5 9EL	8706	33400	-3	2	0	0	1	0	-1	-20
SA5 9EN	-4159	-20755	-3	0	0	0	1	0	-2	-50

Postcode	Average RV Change	Total RV Change	Total Net Change (1990-2000)						Net change total outlets	Net %age change (%)
			Shops	Retail WH	L/Epremises	Banks	Foodstores	Showrooms		
SA5 9HE	1875	3750	-2	0	1	0	0	0	0	0
SA5 9JL	-3175	5450	-1	0	3	0	0	0	3	300
SA5 9JU	-1228	-1305	0	0	2	0	0	-1	2	50
SA5 9JZ	-1525	-18475	-3	0	-3	0	0	0	-6	-86
SA5 9LB	775	2850	2	0	-1	0	0	0	1	100
SA5 9LD	8750	8750	0	0	0	0	0	0	0	0
SA5 9LE	-2867	3400	-1	1	2	0	1	0	2	200
SA5 9LG	6429	56400	2	2	0	0	0	0	4	133
SA5 9LH	-766	-11150	-2	0	-2	0	0	0	-4	-67
SA5 9LN	1281	7775	2	0	-1	0	0	0	2	100
SA5 9LP	-881	-7275	-2	0	-1	0	0	0	-3	-75
SA5 9LQ	725	2700	1	0	0	0	0	0	1	100
SA5 9LR	7785	45000	2	0	1	0	0	0	3	150
SA5 9LW	-5019	-45335	-5	0	-2	0	0	0	-7	-88
SA5 9NA	1040	6410	2	0	1	0	0	0	3	300
SA5 9NB	-283	-3430	-3	0	1	0	0	0	-2	-50
SA5 9ND	-173	-1335	-1	0	0	0	0	0	-1	-50
SA5 9NT	225	1450	1	0	0	0	0	0	1	100
SA5 9PA	750	-475	1	0	-2	0	0	0	-1	-50
SA5 9PD	-650	2100	0	0	2	0	0	0	2	200
SA5 9PG	5592	2775	-2	0	0	0	0	0	-2	-67
SA5 9PN	14250	14250	1	0	-1	0	0	0	0	0
SA6 5EH	-1380	-1380	-1	0	1	0	0	0	0	0
SA6 5EJ	2975	41220	7	0	3	0	0	0	10	1000
SA6 5JG	-234	-27560	-8	0	-3	0	0	0	-11	-92
SA6 5HA	-975	-975	-1	0	1	0	0	0	0	0
SA6 5HB	7025	7025	1	0	-1	0	0	0	0	0
SA6 5HR	-7525	-6700	-1	0	1	1	0	0	1	100
SA6 5HU	548	8020	1	0	1	3	0	0	5	250
SA6 5LF	181	-6175	-4	0	1	-2	0	0	-5	-63
SA6 5LG	1421	18325	2	0	3	0	0	0	5	167
SA6 5LH	2089	4475	0	0	-3	0	0	0	-3	-33
SA6 5LJ	-1833	-15775	-2	0	0	0	0	0	-2	-33

Postcode	Average RV Change	Total RV Change	Total Net Change (1990-2000)						Net change total outlets	Net %age change (%)
			Shops	Retail WH	L/Epremises	Banks	Foodstores	Showrooms		
SA6 5LN	15058	110375	3	0	0	0	0	0	3	75
SA6 5LP	-10669	-107025	-8	0	0	0	0	0	-8	-89
SA6 5LQ	1057	15355	6	0	0	0	0	0	6	300
SA6 5LU	891	-9736	-4	0	-2	0	0	0	-6	-75
SA6 5LW	481	25200	7	0	2	0	0	0	9	450
SA6 5NG	-215	-14975	-9	0	0	0	0	0	-9	-90
SA6 5RA	1060	3745	1	0	0	0	0	0	1	100
SA6 5SU	14388	11775	-1	0	0	0	0	0	-1	-50
SA6 6AA	130	26850	4	0	0	0	0	0	4	400
SA6 6AP	533	-12550	-2	0	0	0	-1	0	-3	-50
SA6 6DH	-2150	-11450	0	0	-2	0	1	0	-2	-67
SA6 6DJ	500	500	0	0	0	0	0	0	0	0
SA6 6HT	5683	21050	0	0	1	0	0	0	2	200
SA6 6JA	20009	135750	3	0	0	0	0	0	3	100
SA6 6JD	-5092	-36260	-2	0	-1	-1	0	0	-4	-80
SA6 6JE	-200	-200	-1	0	0	1	0	0	0	0
SA6 6JG	500	3550	0	0	1	0	0	0	1	100
SA6 6JQ	-32	5150	2	0	0	0	0	0	2	100
SA6 6LH	-406	-5225	-3	0	0	0	0	0	-3	-75
SA6 6LJ	2675	2675	0	0	0	0	0	0	0	0
SA6 6LQ	13167	45700	1	0	1	0	0	0	2	200
SA6 6NB	-6033	-24900	-1	0	-1	0	0	0	-2	-67
SA6 6NN	54600	51700	-1	0	0	0	0	0	-1	-50
SA6 6PB	-23400	-23400	0	0	0	0	0	0	0	0
SA6 6PX	650	650	0	0	0	0	0	0	0	0
SA6 7AU	500	500	-1	0	0	0	0	0	0	0
SA6 7BJ	1200	8100	1	0	1	0	0	0	2	200
SA6 7BL	-2367	-2450	2	0	0	-1	0	0	1	50
SA6 7JS	2721	25200	7	0	0	-1	0	0	6	600
SA6 7NZ	-421	-23950	-6	0	0	0	1	0	-6	-86
SA6 8AD	4489	143500	0	0	0	2	0	2	2	8
SA6 8AL	-30690	53100	9	0	0	0	0	1	9	900
SA6 8AG	17972	-32250	-4	-2	-1	0	0	2	-8	-89

Postcode	Average RV Change	Total RV Change	Total Net Change (1990-2000)						Net change total outlets	Net %age change (%)
			Shops	Retail WH	L/Epremises	Banks	Foodstores	Showrooms		
SA6 8AQ	-1956	130400	2	1	3	0	0	0	8	800
SA6 8AR	-3569	-28050	1	0	2	0	0	-3	1	10
SA6 8AS	5888	30825	-5	0	0	0	0	-2	-3	-27
SA6 8AT	4500	-43000	-5	0	1	0	0	0	-5	-83
SA6 8AZ	4600	4600	0	0	0	0	0	0	0	0
SA6 8BA	-8222	93450	9	0	4	1	0	0	15	1500
SA6 8BH	13073	-76975	-8	0	-4	-1	0	0	-13	-93
SA6 8BQ	-8590	51800	8	0	0	0	0	0	9	900
SA6 8BU	-3100	-61600	-7	0	-1	-1	0	0	-9	-90
SA6 8BW	1433	22350	5	0	0	0	0	0	5	500
SA6 8DA	-263	-20575	-4	0	0	0	0	-1	-5	-83
SA6 8DR	2300	6900	0	0	0	0	0	0	0	0
SA6 8DS	5225	24500	1	0	0	0	0	0	1	33
SA6 8DU	168700	328350	-2	0	1	0	0	0	-1	-33
SA6 8DY	-86777	-101500	6	0	4	0	0	0	11	550
SA6 8EF	83966	28625	-9	0	0	-1	0	0	-10	-91
SA6 8ES	-68200	-68200	-1	0	1	0	0	0	0	0
SA6 8HE	3225	8850	0	0	1	0	0	0	1	100
SA6 8HG	45950	91900	0	0	0	0	0	0	0	0
SA6 8HL	34963	69925	2	0	-2	0	0	0	0	0
SA6 8JG	175150	150300	-1	0	0	0	0	0	-1	-50
SA6 8JN	-111200	-111200	0	0	0	0	0	0	0	0
SA6 8JT	-4872	4515	1	0	4	0	0	0	5	500
SA6 8JU	3915	10775	-1	0	-1	-1	0	0	-3	-43
SA6 8JW	3902	6725	0	0	-1	-1	0	0	-2	-40
SA6 8LG	1400	1400	0	0	0	0	0	0	0	0
SA6 8PE	3425	2100	0	0	-1	0	0	0	-1	-50
SA6 8PP	494825	1990700	2	0	1	0	0	0	3	300
SA6 8PQ	237000	237000	0	0	0	0	0	0	0	0
SA6 8QL	112243	806100	6	0	0	0	0	0	6	600
SA6 8QP	21190	-147000	-2	0	-1	-1	0	0	-4	-57
SA7 9AE	-54225	-224100	-1	0	-1	-1	0	0	-3	-75
SA7 9AD	-56000	-56000	0	0	0	0	0	0	0	0

Postcode	Average RV Change	Total RV Change	Total Net Change (1990-2000)						Net change total outlets	Net %age change (%)
			Shops	Retail WH	L/Epremises	Banks	Foodstores	Showrooms		
SA7 9AF	-33250	-457450	2	0	0	0	0	0	2	200
SA7 9AG	82913	639075	4	0	1	0	0	0	5	250
SA7 9AH	31311	79300	-6	0	1	0	0	0	-5	-56
SA7 9AL	-24875	-104050	-2	0	0	0	0	0	-2	-50
SA7 9AP	1238	8800	2	0	0	0	0	0	2	100
SA7 9AQ	29613	118450	0	0	0	0	0	0	0	0
SA7 9BA	-61304	-380575	-5	0	0	0	0	0	-5	-83
SA7 9BZ	-900	525	1	0	0	0	0	0	1	100
SA7 9DE	93917	283000	1	0	0	0	0	0	1	50
SA7 9DQ	82200	252200	1	0	1	0	0	0	2	200
SA7 9EH	12714	434600	4	0	2	0	0	0	6	600
SA7 9EN	-28798	-124870	0	0	-1	0	0	0	-1	-25
SA7 9FB	45327	523400	6	0	0	2	0	0	8	267
SA7 9FH	26811	-135150	-6	0	0	-1	0	0	-7	-64
SA7 9FP	-18413	-112650	-2	0	0	0	0	0	-2	-50
SA7 9GE	-18675	-39325	-1	0	0	0	0	0	-1	-50
SA7 9HS	-925	-925	0	0	0	0	0	0	0	0
SA7 9JS	1075	1075	0	0	0	0	0	0	0	0
SA7 9JU	-1897	-9685	0	0	0	-1	0	0	-1	-33
SA7 9LS	22300	45550	1	0	0	0	0	0	1	100
SA7 9NA	-9042	-11850	2	0	-1	0	0	0	1	50
SA7 9NN	-2383	-10750	-1	0	0	-1	0	0	-2	-67
SA7 9QL	-100	-100	-1	0	1	0	0	0	0	0
SA7 9RD	217400	1093000	3	0	1	0	0	0	4	400
SA7 9RL	-113833	-773000	-3	0	0	-1	-1	3	-5	-83
SA7 9RY	-10562	-5125	-1	0	2	0	0	0	1	100
SA7 9SL	-2088	-6050	0	0	0	0	0	0	-1	-50
SA7 9UU	56058	343725	1	0	1	0	0	0	5	500
SA7 9XA	-103850	-639600	-3	0	-2	0	0	0	-5	-83
SA1 3EY	-2450	-2450	-1	0	0	0	0	0	-1	-100
SA1 3SQ	-2100	-2100	-1	0	0	0	0	0	-1	-100
SA1 4BH	-8750	-8750	-1	0	0	0	0	0	-1	-100
SA1 4HW	-4300	-4300	-1	0	0	0	0	0	-1	-100

Postcode	Average RV Change	Total RV Change	Total Net Change (1990-2000)						Net change total outlets	Net %age change (%)
			Shops	Retail WH	L/Epremises	Banks	Foodstores	Showrooms		
SA1 4NF	-1000	-1000	-1	0	0	0	0	0	-1	-100
SA1 4NQ	-2600	-2600	-1	0	0	0	0	0	-1	-100
SA1 5RW	-8000	-8000	-1	0	0	0	0	0	-1	-100
SA1 1RG	-5300	-5300	-1	0	0	0	0	0	-1	-100
SA1 1YH	-4200	-4200	-1	0	0	0	0	0	-1	-100
SA1 1YW	-4000	-4000	-1	0	0	0	0	0	-1	-100
SA1 1YZ	-4275	-8550	-1	0	-1	0	0	0	-2	-200
SA1 1UN	-2550	-2550	-1	0	0	0	0	0	-1	-100
SA1 2NT	-3650	-3650	-1	0	0	0	0	0	-1	-100
SA1 2PA	-1663	-3325	-1	0	0	-1	0	0	-2	-100
SA1 6BE	-1663	-3325	0	-2	0	0	0	0	-2	-100
SA1 6DD	-4400	-4400	0	0	-1	0	0	0	-1	-100
SA1 6FG	-650	-650	-1	0	0	0	0	0	-1	-100
SA1 6YB	-1338	-2675	-2	0	0	0	0	0	-2	-200
SA1 8LY	-800	-800	-1	0	0	0	0	0	-1	-100
SA1 8DW	-1050	-1050	-1	0	0	0	0	0	-1	-100
SA2 0DY	-1850	-3700	-2	0	0	0	0	0	-2	-200
SA2 0FG	-1988	-3975	-2	0	0	0	0	0	-2	-200
SA2 0HR	-650	-650	-1	0	0	0	0	0	-1	-100
SA2 0UJ	-1550	-1550	-1	0	0	0	0	0	-1	-100
SA2 0YD	-1925	-1925	-1	0	0	0	0	0	-1	-100
SA2 7JN	-5100	-5100	-1	0	0	0	0	0	-1	-100
SA2 7ST	-2550	-2550	-1	0	0	0	0	0	-1	-100
SA2 7TB	-1250	-1250	-1	0	0	0	0	0	-1	-100
SA2 8NG	-2450	-2450	-1	0	0	0	0	0	-1	-100
SA4 1DX	-1225	-1225	-1	0	0	0	0	0	-1	-100
SA4 2AS	-7500	-7500	0	-1	0	0	0	0	-1	-100
SA4 2AZ	-1375	-1375	0	-1	0	0	0	0	-1	-100
SA4 2BU	-2500	-2500	0	-1	0	0	0	0	-1	-100
SA4 2BW	-1250	-1250	0	-1	0	0	0	0	-1	-100
SA4 2FU	-5000	-5000	0	0	0	-1	0	0	-1	-100
SA4 2GT	-500	-500	0	0	0	-1	0	0	-1	-100
SA4 2GU	-2000	-2000	-1	0	0	0	0	0	-1	-100

Postcode	Average RV Change	Total RV Change	Total Net Change (1990-2000)						Net change total outlets	Net %age change (%)
			Shops	Retail WH	L/Epremises	Banks	Foodstores	Showrooms		
SA4 2NN	-1313	-2625	-1	-1	0	0	0	0	-2	-100
SA4 2NU	-1800	-1800	0	-1	0	0	0	0	-1	-100
SA4 2NW	-11221	-145875	-12	-1	0	0	0	0	-13	-100
SA4 2PE	-1925	-1925	-1	0	0	0	0	0	-1	-100
SA4 2PF	-1363	-2725	-1	0	-1	0	0	0	-2	-100
SA4 2PG	-1588	-6350	-4	0	0	0	0	0	-4	-100
SA4 2SH	-1788	-3575	-2	0	0	0	0	0	-2	-100
SA4 2YF	-950	-950	-1	0	0	0	0	0	-1	-100
SA4 3NY	-7550	-755	-1	0	0	0	0	0	-1	-100
SA4 3PN	-2725	-2725	-1	0	0	0	0	0	-1	-100
SA4 4AF	-1663	-3325	-2	0	0	0	0	0	-2	-100
SA5 4AF	-1650	-1650	0	0	-1	0	0	0	-1	-100
SA5 4RA	-2900	-2900	-1	0	0	0	0	0	-1	-100
SA5 5AT	-16800	-16800	0	0	-1	0	0	0	-1	-100
SA5 7DE	-2850	-2850	-1	0	0	0	0	0	-1	-100
SA5 7HT	-12600	-12600	-1	0	0	0	0	0	-1	-100
SA5 7JD	-3400	-3400	-1	0	0	0	0	0	-1	-100
SA5 8DN	-1950	-1950	-1	0	0	0	0	0	-1	-100
SA5 8ES	-16000	-16000	-1	0	0	0	0	0	-1	-100
SA5 8JX	-15000	-15000	-1	0	0	0	0	0	-1	-100
SA5 8LN	-177000	-177000	-1	0	0	0	0	0	-1	-100
SA5 8LW	-37100	-111300	-3	0	0	0	0	0	-3	-100
SA5 8QH	-1338	-2675	-1	0	-1	0	0	0	-2	-100
SA6 5AY	-16400	-16400	0	0	0	-1	0	0	-1	-100
SA6 5DF	-9350	-9350	-1	0	0	0	0	0	-1	-100
SA6 6QN	-1250	-1250	-1	0	0	0	0	0	-1	-100
SA6 6QW	-1250	-1250	-1	0	0	0	0	0	-1	-100
SA6 7BB	-7350	-7350	-1	0	0	0	0	0	-1	-100
SA6 7DY	-1769	-7075	-4	0	0	0	0	0	-4	-100
SA6 8AB	-3700	-3700	0	0	-1	0	0	0	-1	-100
SA6 8AY	-10400	-10400	0	0	0	0	0	-1	-1	-100
SA6 8LA	-4117	-12350	-1	0	-1	-1	0	0	-3	-100
SA6 8LH	-2325	-2325	-1	0	0	0	0	0	-1	-100

Postcode	Average RV Change	Total RV Change	Total Net Change (1990-2000)						Net change total outlets	Net %age change (%)
			Shops	Retail WH	L/Epremises	Banks	Foodstores	Showrooms		
SA6 8PZ	-125000	-125000	-1	0	0	0	0	0	-1	-100
SA7 9AJ	-2400	-2400	-1	0	0	0	0	0	-1	-100
SA7 9DG	-26600	-53200	-2	0	-1	0	0	0	-3	-100
SA7 9DP	-55950	-111900	-2	0	0	0	0	0	-2	-100
SA7 9XZ	-2750	-2750	0	0	-1	0	0	0	-1	-100
SA1 1QR	13500	13500	1	0	0	0	0	0	1	100
SA1 2LL	1550	1550	0	0	0	1	0	1	1	100
SA1 2NT	12500	12500	1	0	0	0	0	1	1	100
SA1 2PA	1638	3275	1	0	0	0	0	0	2	200
SA1 2PG	15000	15000	0	0	0	0	0	0	1	100
SA1 3EE	101563	812500	7	0	1	0	0	0	8	800
SA1 3HY	5000	5000	1	0	0	0	0	0	1	100
SA1 3JU	4750	4750	1	0	0	0	0	0	1	100
SA1 3LS	15500	15500	1	0	0	0	0	0	1	100
SA1 3RA	987000	987000	1	0	0	0	0	0	1	100
SA1 3XG	13325	26650	0	0	2	0	0	0	2	200
SA1 4NH	1925	1925	1	0	0	0	0	0	1	100
SA1 4QF	13750	13750	1	0	0	0	0	0	1	100
SA1 5AE	68063	272250	4	0	0	0	0	0	4	400
SA1 5AW	9800	9800	1	0	0	0	0	0	1	100
SA1 5HY	7800	7800	1	0	0	0	0	0	1	100
SA1 5JE	12500	12500	1	0	0	0	0	0	1	100
SA1 5JH	23250	23250	0	0	1	0	0	0	1	100
SA1 1YJ	5200	5200	1	0	0	0	0	0	1	100
SA1 2BA	575000	57500	1	0	0	0	0	0	1	100
SA1 6JA	1375	1375	1	0	0	0	0	0	1	100
SA1 7AY	1275	1275	1	0	0	0	0	0	1	100
SA1 7BB	1025	1025	0	0	1	0	0	0	1	100
SA1 8AU	5000	5000	1	0	0	0	0	0	1	100
SA1 8AY	401000	401000	1	0	0	0	0	0	1	100
SA1 1LH	20000	20000	1	0	0	0	0	0	1	100
SA2 7BA	8700	8700	1	0	0	0	0	0	1	100
SA2 7HH	4100	4100	1	0	0	0	0	0	1	100

Postcode	Average RV Change	Total RV Change	Total Net Change (1990-2000)						Net change total outlets	Net %age change (%)
			Shops	Retail WH	L/Epremises	Banks	Foodstores	Showrooms		
SA2 9EG	2300	2300	1	0	0	0	0	0	1	100
SA4 4BW	1625	1625	0	0	1	0	0	0	1	100
SA4 4BZ	2500	25000	1	0	0	0	0	0	1	100
SA4 4LT	66500	66500	1	0	0	0	0	0	1	100
SA4 4NN	1463	2925	1	0	1	0	0	0	2	200
SA4 4NW	13343	146775	8	0	1	1	0	0	11	1100
SA4 4PE	1825	1825	1	0	0	0	0	0	1	100
SA4 4PF	1325	2650	2	0	0	0	0	0	2	200
SA4 6PG	2100	2100	1	0	0	0	0	0	1	100
SA4 6PG	790	790	1	0	0	0	0	0	1	100
SA4 6SH	1850	1850	1	0	0	0	0	0	1	100
SA4 BU	1975	1975	1	0	0	0	0	0	1	100
SA5 4AA	7000	7000	1	0	0	0	0	0	1	100
SA5 4BL	11500	11500	1	0	0	0	0	0	1	100
SA5 5AR	18000	18000	1	0	0	0	0	0	1	100
SA5 5DN	1950	1950	0	0	1	0	0	0	1	100
SA5 5NN	2000	2000	1	0	0	0	0	0	1	100
SA5 7NA	950	950	1	0	0	0	0	0	1	100
SA5 8BD	1250	1250	1	0	0	0	0	0	1	100
SA5 8JL	376000	376000	1	0	0	0	0	0	1	100
SA5 8JS	3500	3500	1	0	0	0	0	0	1	100
SA5 8LB	59500	59500	1	0	0	0	0	0	1	100
SA5 8LG	82500	82500	0	0	1	0	0	0	1	100
SA5 8LP	81000	81000	1	0	0	0	0	0	1	100
SA5 8NJ	25750	103000	3	0	1	0	0	0	4	400
SA5 8LH	1400	1400	1	0	0	0	0	0	1	100
SA6 5DE	1300	1300	1	0	0	0	0	0	1	100
SA6 5NT	12500	12500	1	0	0	0	0	0	1	100
SA6 6HG	1775	1775	0	1	0	0	0	0	1	100
SA6 8AW	18000	18000	1	0	0	0	0	1	1	100
SA6 8ER	156000	156000	1	0	0	0	0	0	1	100
SA6 8ET	8800	8800	0	0	0	1	0	0	1	100
SA6 8JR	200000	200000	1	0	0	0	0	0	1	100
SA7 9FJ	49000	49000	1	0	1	0	0	0	1	100
SA7 9JR	10750	10750	1	0	0	0	0	0	1	100